

=> file hca

FILE 'HCA' ENTERED AT 14:04:04 ON 12 AUG 2003  
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FILE COVERS 1907 - 7 Aug 2003 VOL 139 ISS 7  
FILE LAST UPDATED: 7 Aug 2003 (20030807/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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(FILE 'HOME' ENTERED AT 13:29:40 ON 12 AUG 2003)

FILE 'HCA' ENTERED AT 13:30:05 ON 12 AUG 2003

L1 1 S US20010023888/PN  
SEL L1 RN

FILE 'REGISTRY' ENTERED AT 13:30:30 ON 12 AUG 2003

L2 9 S E1-E9  
L3 2 S L2 AND 0-2/F  
L4 2 S L2 AND (STEEL? OR IRON?)

FILE 'HCA' ENTERED AT 13:32:12 ON 12 AUG 2003

L5 2744112 S STEEL? OR ALLOY? OR METAL### OR STAINLESS##(2N)STEEL? OR (IR  
L6 398193 S L4  
L7 58091 S L3  
L8 323350 S FLUORID? OR FLUORIN?  
L9 91656 S PASSIV?  
L10 QUE L5 OR L6  
L11 329831 S L7 OR L8  
L12 64305 S L10 AND L11  
L13 871 S L12 AND L9  
L14 153866 S WELD? OR SOLDER?  
L15 19 S L13 AND L14  
L16 18 S L15 NOT L1

FILE 'LCA' ENTERED AT 13:41:02 ON 12 AUG 2003

L17 1777 S 55/SX,SC

FILE 'HCA' ENTERED AT 13:43:18 ON 12 AUG 2003

L18 15 S L16 AND 1907-1998/PY,PRY

L19 3 S L16 NOT L18  
L20 7 S L16 AND L17  
L21 7 S L20 NOT L19  
L22 1 S L15 NOT L16

FILE 'WELDASEARCH' ENTERED AT 13:45:21 ON 12 AUG 2003

L23 119753 S L5  
L24 840 S L8  
L25 405 S PASSIV?  
L26 573 S L23 AND L24  
L27 3 S L26 AND L25  
E PASSIVATION/CT  
E PASSIVATE/CT  
E PASSIV/CT  
L28 7 S L24 AND L25  
L29 137021 S WELD?  
L30 7 S (L27 OR L28)  
L31 239 S L25 AND L29  
L32 192 S L31 AND L5  
L33 177 S L32 AND 1965-1999/PY  
L34 177 S L33 AND L25  
L35 57 S PASSIV?/TI  
L36 16 S L34 AND L35  
L37 209 S CHLORIN? OR BROMIN?

FILE 'METADEX' ENTERED AT 13:56:42 ON 12 AUG 2003

L38 101642 S WELD?  
L39 923480 S L5  
L40 87060 S L38 AND L39  
L41 15392 S PASSIV?  
L42 353 S L40 AND L41  
L43 11449 S FLUOR?  
L44 5 S L42 AND L43  
L45 3 S L44 AND 1940-1999/PY  
L46 3 S L44 AND 1940-1998/PY

FILE 'WPIX' ENTERED AT 14:00:11 ON 12 AUG 2003

FILE 'JAPIO, WPIX' ENTERED AT 14:00:19 ON 12 AUG 2003

L47 331948 S WELD?  
L48 44628 S PASSIV?  
L49 126323 S L47 AND L5  
L50 335303 S FLUOR?  
L51 231 S L49 AND L48  
L52 19 S L51 AND L50

FILE 'HCA' ENTERED AT 14:04:04 ON 12 AUG 2003

=> d L22 1 cbib abs hitind hitrn

L22 ANSWER 1 OF 1 HCA COPYRIGHT 2003 ACS on STN

134:283940 Hydrogen-containing shielding gas for clean **welding** of  
**fluorine-passivated stainless steel**

parts. Ohmi, Tadaihiro; Nitta, Takahisa; Shirai, Yasuyuki; Nakamura, Osamu  
(Kabushiki Kaisha Ultraclean Technology Research Institute, Japan). U.S.  
US 6220500 B1 20010424, 20 pp. (English). CODEN: USXXAM. APPLICATION:  
US 1998-130583 19980807. PRIORITY: JP 1997-227121 19970808; JP  
1997-322361 19971107.

AB The shielding gas mixt. for **welding** of **fluoride-**  
**passivated stainless steel** parts contains

0.1-20% H<sub>2</sub> in inert gas (esp. Ar), and the **welded** assembly is repassivated with a **fluoride** film. The process is suitable for **welding the fluoride-passivated stainless steel** pipes without generation of contaminating dust. The **welded** pipe systems are suitable for delivery of clean F-contg. gases in etch processing of semiconductor circuit wafers. The thickness of **fluoride passivation** film on the tubular parts is optionally decreased to .1 to req. 10 nm by wet etching, followed by the **welding** and repassivation. The **fluoride** repassivation treatment includes heating the **welded** parts in a flowing mixt. with F-contg. gas, esp. on the interior pipe surfaces.

- IC ICM B23K001-20  
ICS B23K005-213; B23K020-24; B23K031-02; C21D001-09
- NCL 228203000
- CC 55-9 (Ferrous Metals and Alloys)  
Section cross-reference(s): 76
- ST **stainless steel** surface **fluoride**  
**passivated welding**; semiconductor etching  
**fluoride** gas **passivated** feed tube
- IT Etching  
(elec.-circuit, **welded** feed line for; H<sub>2</sub>-contg. shielding gas  
for clean **welding** of **fluorine-passivated**  
**stainless steel**)
- IT **Passivation**  
(**fluoride**-film; H<sub>2</sub>-contg. shielding gas for clean  
**welding** of **fluorine-passivated**  
**stainless steel**)
- IT **Welding of metals**  
(of **stainless steel**; H<sub>2</sub>-contg. shielding gas for  
clean **welding** of **fluorine-passivated**  
**stainless steel**)
- IT Pipes and Tubes  
(**stainless steel**, **welding** of; H<sub>2</sub>-contg.  
shielding gas for clean **welding** of **fluorine-**  
**passivated stainless steel**)
- IT 7439-89-6, Iron, processes 7439-96-5, Manganese, processes  
7440-02-0, Nickel, processes 7440-47-3, Chromium, processes  
RL: REM (Removal or disposal); PROC (Process)  
(on **welds**; H<sub>2</sub>-contg. shielding gas for clean **welding**  
of **fluorine-passivated stainless**  
**steel**)
- IT 7782-41-4, Fluorine, processes 16984-48-8,  
**Fluoride**, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**passivation** with; H<sub>2</sub>-contg. shielding gas for clean  
**welding** of **fluorine-passivated**  
**stainless steel**)
- IT 7440-21-3, Silicon, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(semiconductor, etching line for; H<sub>2</sub>-contg. shielding gas for clean  
**welding** of **fluorine-passivated**  
**stainless steel**)
- IT 1333-74-0, Hydrogen, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(shielding gas contg.; H<sub>2</sub>-contg. shielding gas for clean  
**welding** of **fluorine-passivated**  
**stainless steel**)
- IT 12597-68-1, **Stainless steel**, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)

- (welding of; H2-contg. shielding gas for clean welding of **fluorine-passivated stainless steel**)
- IT 7439-89-6, Iron, processes  
RL: REM (Removal or disposal); PROC (Process)  
(on **welds**; H2-contg. shielding gas for clean welding of **fluorine-passivated stainless steel**)
- IT 7782-41-4, Fluorine, processes 16984-48-8, Fluoride, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**passivation** with; H2-contg. shielding gas for clean welding of **fluorine-passivated stainless steel**)
- IT 12597-68-1, Stainless steel, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(welding of; H2-contg. shielding gas for clean welding of **fluorine-passivated stainless steel**)

=> d L19 1-3 cbib abs hitind hitrn

L19 ANSWER 1 OF 3 HCA COPYRIGHT 2003 ACS on STN  
137:268532 Dental **solders** in paste form. Gundlach, Hans-Werner (Germany). Ger. Offen. DE 10115199 A1 20021010, 4 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2001-10115199 20010327.

AB The invention concerns non-precious **metal dental solders** in paste form that contain the **metals** as salts in order to prevent the formation of **passive** layers during application. Included are oxides, **fluorides**, phosphates, silicates of magnesium, aluminum, silicon, calcium, titanium, chromium, manganese, iron, cobalt, nickel, zinc, zirconium, tin, tantalum, tungsten, barium, germanium, gallium, niobium, indium, lanthanum, and cerium. The dental **solder** compns. further contain a second **alloy** that contain silicon, boron or carbon for decreasing the m.p. Other ingredients are cellulose or its derivs., polymers or waxes.

IC ICM A61K006-04

CC 63-7 (Pharmaceuticals)

ST dental **alloy solder** paste **metal** oxide

IT Dental materials and appliances

(**alloys, solders**; dental **solders** in paste form)

IT Melting point

(dental **solders** in paste form)

IT Borates

**Fluorides**, biological studies

Oxides (inorganic), biological studies

Phosphates, biological studies

Polymers, biological studies

Silicates, biological studies

Waxes

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(dental **solders** in paste form)

IT **Metals**, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(non-precious; dental **solders** in paste form)

IT 1303-86-2, Boron oxide, biological studies 7429-90-5D, Aluminium, salts

7439-89-6D, Iron, salts 7439-91-0D, Lanthanum, salts

7439-95-4D, Magnesium, salts 7439-96-5D, Manganese, salts 7440-02-0D,

Nickel, salts 7440-03-1D, Niobium, salts 7440-21-3D, Silicon, salts 7440-25-7D, Tantalum, salts 7440-31-5D, Tin, salts 7440-32-6D, Titanium, salts 7440-33-7D, Tungsten, salts 7440-39-3D, Barium, salts 7440-45-1D, Cerium, salts 7440-47-3D, Chromium, salts 7440-48-4D, Cobalt, salts 7440-55-3D, Gallium, salts 7440-56-4D, Germanium, salts 7440-66-6D, Zinc, salts 7440-67-7D, Zirconium, salts 7440-70-2D, Calcium, salts 7440-74-6D, Indium, salts 7637-07-2, Boron **fluoride**, biological studies 9004-34-6, Cellulose, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(dental **solders** in paste form)

IT 7439-89-6D, Iron, salts

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(dental **solders** in paste form)

L19 ANSWER 2 OF 3 HCA COPYRIGHT 2003 ACS on STN

137:34062 Materials of construction. Thermoplastic piping systems for pharmaceutical water applications. Govaert, Roger; Lueghamer, Albert (Asahi/America Inc., USA). Ultrapure Water, 18(10), 32-39 (English) 2001. CODEN: ULWAE5. ISSN: 0747-8291. Publisher: Tall Oaks Publishing.

AB A review on the use of thermoplastics, such as poly(vinylidene **fluoride**) and polypropylene, for pharmaceutical water piping systems. It features a discussion on the various advantages offered by thermoplastics over **stainless steel** systems. These advantages include corrosion resistance and **passivation**, simplified **welding** techniques, superior surface finish, purity of materials, and reduced operating cost.

CC 38-0 (Plastics Fabrication and Uses)  
Section cross-reference(s): 61, 63

L19 ANSWER 3 OF 3 HCA COPYRIGHT 2003 ACS on STN

133:97864 Method of utilizing a plasma gas mixture containing argon and CF4 to clean and coat a conductor before applying **solder**. Casey, William J. (MCMS, Inc., USA). U.S. US 6092714 A 20000725, 5 pp. (English). CODEN: USXXAM. APPLICATION: US 1999-270646 19990316.

AB A method for cleaning and coating a conductor in a plasma reaction chamber using a plasma gas mixt. contg. Ar and CF4 to clean and coat a conductor. The method for cleaning and coating a conductor includes the combination of cleaning processes including, phys. redn. and chem. reaction and the formation of a polymn. **passivation** film formed on oxyfluoro **metal** compns. (SnOxFy) which occur during exposure of a conductor to the process of the invention. The polymn. **passivation** film is formed as a result of the combination of the degraded CF4 gas and degraded environmental and casual hydrocarbons which are present as a variety of unspecified org. contaminants to form crude polymeric mols. in the high energy environment of the plasma. The treatment of conductive surfaces according to the method of the present invention allowed a **soldering** operation for 3 to 8 h following treatment without addnl. prepn., cleaning or treatment.

IC ICM B23K009-00

ICS B23K028-00; B23K001-20; B23K031-02

NCL 228205000

CC 76-2 (Electric Phenomena)

ST plasma cleaning **metal** conductor fluomethane argon oxygen **soldering**

IT Mixtures

(gaseous; method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride to clean and coat conductor before applying **solder**)

IT Electric conductors

Electronic packaging process

**Passivation**

**Soldering**

(method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride to clean and coat conductor before applying solder)

IT **Metals, processes**

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride to clean and coat conductor before applying solder)

IT **Fluorides, processes**

RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(oxyfluorides; method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride to clean and coat conductor before applying solder)

IT Cleaning

Etching

Polymerization

Vapor deposition process

(plasma; method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride to clean and coat conductor before applying solder)

IT 7782-44-7, Oxygen, uses

RL: NUU (Other use, unclassified); USES (Uses)

(method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride and oxygen to clean and coat conductor before applying solder)

IT 75-73-0, Carbon **fluoride** (CF<sub>4</sub>) 7440-37-1, Argon, uses

RL: NUU (Other use, unclassified); USES (Uses)

(method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride to clean and coat conductor before applying solder)

IT 98743-33-0P, Tin **fluoride** oxide

RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride to clean and coat conductor before applying solder)

IT 7440-31-5, Tin, processes

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(method of utilizing plasma gas mixt. contg. argon and carbon tetrafluoride to clean and coat conductor before applying solder)

=> d L21 1-7 ti

L21 ANSWER 1 OF 7 HCA COPYRIGHT 2003 ACS on STN

TI **Stainless steel** having **passive**

**fluoride** film formed thereon and equipment manufactured therefrom

L21 ANSWER 2 OF 7 HCA COPYRIGHT 2003 ACS on STN

TI Surface-treated bellows with excellent resistance to corrosive gas and plasma

- L21 ANSWER 3 OF 7 HCA COPYRIGHT 2003 ACS on STN  
TI **Fluorine passivation** technology for **fluoride** gas distribution system
- L21 ANSWER 4 OF 7 HCA COPYRIGHT 2003 ACS on STN  
TI Washing of **stainless steel** surface
- L21 ANSWER 5 OF 7 HCA COPYRIGHT 2003 ACS on STN  
TI Effect of yttrium on the corrosion resistance of **weld** joints of **steel** 12Kh18N10T
- L21 ANSWER 6 OF 7 HCA COPYRIGHT 2003 ACS on STN  
TI Corrosion resistance of type chromium-molybdenum-titanium (18Cr2MoTi) **stainless steel**
- L21 ANSWER 7 OF 7 HCA COPYRIGHT 2003 ACS on STN  
TI Properties of **weld** joints of corrosion-resistant ultralow-carbon austenitic **steels**

=> d L21 1-7 cbib abs hitind hitrn

- L21 ANSWER 1 OF 7 HCA COPYRIGHT 2003 ACS on STN  
133:7677 **Stainless steel** having **passive fluoride** film formed thereon and equipment manufactured therefrom.  
Ohmi, Tadahiro; Kikuyama, Hirohisa; Miyashita, Masayuki; Izumi, Hiroto; Kujime, Takanobu (Stella Chemifa Kabushiki Kaisha, Japan). PCT Int. Appl. WO 2000034546 A1 20000615, 22 pp. DESIGNATED STATES: W: JP, KR, SG, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1998-JP5491 19981204.
- AB A **stainless steel** characterized by having a **passive fluoride** film mainly comprising a **metal fluoride** formed on at least part of the surface thereof with a thickness of 190.Å or less. The **passive** film can be readily applied, does not generate particles even when worked by **welding**, and does not generate leakage even when formed on a joint seal surface or a valve seat surface.
- IC ICM C23C008-08  
CC 55-6 (Ferrous Metals and Alloys)  
ST **stainless steel passive fluoride** film valve  
IT **Fluorides**, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(**stainless steel** having **passive fluoride** film formed thereon and equipment manufd. therefrom)
- IT Etching apparatus  
Filters  
Flowmeters  
Joints, mechanical  
Manometers  
**Passivation**  
Pipelines  
Valves  
Vapor deposition apparatus  
(**stainless steel** having **passive fluoride** film formed thereon for)
- IT 11134-23-9, Sus316L 12597-68-1, **Stainless steel**, processes  
RL: PEP (Physical, engineering or chemical process); TEM (Technical or

engineered material use); PROC (Process); USES (Uses)

(**stainless steel** having **passive**

**fluoride** film formed thereon and equipment manufd. therefrom)

IT 12597-68-1, **Stainless steel**, processes

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(**stainless steel** having **passive**

**fluoride** film formed thereon and equipment manufd. therefrom)

L21 ANSWER 2 OF 7 HCA COPYRIGHT 2003 ACS on STN

131:186278 Surface-treated bellows with excellent resistance to corrosive gas and plasma. Omi, Tadahiro; Nitta, Takehisa; Mizuno, Yoshiyuki; Takano, Haruyuki (Ultraclean Technology Kaihatsu Kenkyusho K. K., Japan). Jpn. Kokai Tokkyo Koho JP 11236971 A2 19990831 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-339066 19981130. PRIORITY: JP 1997-331951 19971202.

AB Bellows, plates forming them, or their joints are coated at least partially with **passive**-state films formed by

**fluorination** or oxidn. and optionally coated with fluorocarbon polymers. Thus, a **welded stainless steel**

bellows was electroplated with Ni-P and **fluorinated** to form NiF<sub>2</sub> film showing excellent plasma and corrosive gas resistance.

IC ICM F16J003-04

ICS F16J003-04; C23C022-34; H01L021-3065

CC 42-2 (Coatings, Inks, and Related Products)

Section cross-reference(s): 55, 56

ST **fluorinated steel** bellows plasma resistance; corrosion resistance bellows **fluorination**

IT Bellows

**Fluorination**

**Passivation**

(surface-treated bellows with good resistance to corrosive gas and plasma)

IT 12597-68-1, **Stainless steel**, uses 53679-76-8

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(surface-treated bellows with good resistance to corrosive gas and plasma)

IT 12597-68-1, **Stainless steel**, uses

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(surface-treated bellows with good resistance to corrosive gas and plasma)

L21 ANSWER 3 OF 7 HCA COPYRIGHT 2003 ACS on STN

130:98595 **Fluorine passivation** technology for

**fluoride** gas distribution system. Shirai, Yasuyuki; Hashimoto, Taiji; Narazaki, Masaki; Nakagawa, Yoshinori; Ohmi, Tadahiro (Department Electronic Engineering, Faculty Engineering, Tohoku University, Sendai, 980-77, Japan). Proceedings of ISSM'96, International Symposium on Semiconductor Manufacturing, 5th, Tokyo, Oct. 2-4, 1996, 333-336. Ultra Clean Society: Tokyo, Japan. (English) 1996. CODEN: 66ZGAN.

AB A **fluorine passivation** technol. has been developed for

316L **stainless steel** surfaces for use in most active **fluorine** gas supply systems. The **fluorine**

**passivation** process consist of two steps thermal treatment. First step is direct **fluoridation** of **stainless steel**

using 100% F<sub>2</sub> gas to make a film which is nonstoichiometric, and second step is thermal modification in inert gas in order to obtain a stoichiometric film consisting of FeF<sub>2</sub>. The stoichiometric



- fluorine passivated** surface exhibits chem. stability in 100% F2 gas at 200.degree.C for 3 h. Furthermore, a **welding** technol. was developed for **fluorine passivated** tubing system without particle generation.
- CC 55-6 (Ferrous Metals and Alloys)  
Section cross-reference(s): 76
- ST **fluorine passivation stainless steel**  
; **welding stainless steel tube**  
**fluorine passivated**
- IT **Passivation**  
**Welding of metals**  
(**fluorine passivation** technol. for gas distribution system)
- IT Pipes and Tubes  
(**steel; fluorine passivation** technol. for gas distribution system)
- IT 11134-23-9, Aisi 316l  
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(**fluorine passivation** technol. for gas distribution system)
- IT 7789-28-8P, Iron **fluoride** fef2  
RL: PNU (Preparation, unclassified); PREP (Preparation)  
(**fluorine passivation** technol. for gas distribution system)
- IT 7782-41-4, **Fluorine**, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(**passivation** technol. for gas distribution system)
- IT 7782-41-4, **Fluorine**, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(**passivation** technol. for gas distribution system)
- L21 ANSWER 4 OF 7 HCA COPYRIGHT 2003 ACS on STN
- 119:122185 Washing of **stainless steel** surface. Myazaki, Atsuo; Iwanaga, Junko (Ebara Kogyo Senjo Kk, Japan). Jpn. Kokai Tokkyo Koho JP 05117882 A2 19930514 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-309844 19911028.
- AB **Stainless steel** is washed with an aq. soln. contg. 0.003-0.025 mol permanganate ions/L, 0.15-2.0 mol HF/L, and an inorg. acid (e.g., H2SO4, HNO3, H3PO4). The washed surface can be addnl. **passivated** by contacting with H2O2 after the acidic aq. soln. is removed. The process effectively removes oxides having poor soly. and which are formed on the **stainless steel** in **welding**.
- IC ICM C23G001-02
- CC 55-6 (Ferrous Metals and Alloys)
- ST **stainless steel** washing acidic soln; permanganate washing soln **stainless steel**; hydrogen **fluoride** washing **stainless steel**
- IT Permanganates  
RL: USES (Uses)  
(in washing soln. for **stainless steel**)
- IT Oxides, miscellaneous  
RL: REM (Removal or disposal); PROC (Process)  
(removal of, from **stainless steel** after **welding**, acidic aq. soln. for)
- IT 7664-39-3, Hydrogen **fluoride**, uses  
RL: USES (Uses)  
(in washing soln. for **stainless steel**)
- IT 7722-84-1, Hydrogen peroxide, uses

- RL: USES (Uses)  
(**passivation** with, of washed **stainless steel** surface)
- IT 12597-68-1, **Stainless steel**, miscellaneous  
RL: MSC (Miscellaneous)  
(washing of, permanganate and hydrogen **fluoride** in acidic aq. soln. for)
- IT 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 7697-37-2, Nitric acid, uses  
RL: USES (Uses)  
(washing soln. for **stainless steel** contg. permanganate and hydrogen **fluoride** and)
- IT 12597-68-1, **Stainless steel**, miscellaneous  
RL: MSC (Miscellaneous)  
(washing of, permanganate and hydrogen **fluoride** in acidic aq. soln. for)
- L21 ANSWER 5 OF 7 HCA COPYRIGHT 2003 ACS on STN
- 97:96368 Effect of yttrium on the corrosion resistance of **weld** joints of **steel** 12Kh18N10T. Aleksandrov, A. G.; Lazebnov, P. P.; Savonov, Yu. N.; Langer, N. A.; Gorban, V. A. (Zaporozh. Mashinostr. Inst., Zaporozhe, USSR). Svarochnoe Proizvodstvo (2), 12-14 (Russian) 1982. CODEN: SVAPAI. ISSN: 0491-6441.
- AB Inoculation of **weld metal** of austenitic Cr-Ni **steel** 12Kh18N10T [50947-31-4] with 0.010-0.020% Y by the introduction of master Al-50% Y **alloy** [82681-20-7] through a F-Ca electrode coating increased the corrosion resistance of the **weld** both after **welding** and heat treatment due to a decrease in corrosion current, acceleration of **passivation**, and inhibition of active dissoln. of the **weld metal** in alk. media (30% **NaOH**). The lowest corrosion rate of 0.0009-0.0017 g/m<sup>2</sup>-h was obtained after austenitization at 1070 +/- 25.degree.. Inoculation with Y, along with favoring the transition of **alloying** elements into the **weld metal**, decreased the content of S and O impurities in surfaced **metal**.
- CC 55-10 (Ferrous Metals and Alloys)
- ST **stainless steel weld** corrosion yttrium;  
**steel weld** yttrium corrosion austenitization; corrosion **steel passivation** yttrium; yttrium **steel weld** sulfur oxygen; aluminum yttrium **stainless steel weld**
- IT Corrosion  
(of **stainless steel** pipe, in alk. media, yttrium effect on)
- IT **Welds**  
(**stainless steel**, corrosion of austenitic, yttrium inoculation effect on)
- IT **Welding**  
(electrodes, **fluoride**-calcium coating, for **stainless steel**, corrosion resistance in relation to)
- IT **Passivation**  
(self-, of **steel weld** in sodium hydroxide soln., yttrium effect on)
- IT 1310-73-2, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(corrosion by boiling, of **welded stainless steel** pipes, yttrium effect on)
- IT 50947-31-4  
RL: USES (Uses)  
(corrosion of **welded**, yttrium effect on)

- IT 12725-20-1  
RL: USES (Uses)  
(electrode core, in **welding of stainless steel** with **fluoride**-calcium coating)
- IT 82681-20-7  
RL: USES (Uses)  
(inoculation of **stainless steel weld** with, through electrode coating, corrosion resistance in relation to)
- IT 7440-65-5, uses and miscellaneous  
RL: USES (Uses)  
(inoculation with **alloy** contg., of **stainless steel weld**, for increased corrosion resistance)
- L21 ANSWER 6 OF 7 HCA COPYRIGHT 2003 ACS on STN  
84:168044 Corrosion resistance of type chromium-molybdenum-titanium (18Cr2MoTi) **stainless steel**. Troselius, L.; Andersson, I.; Andersson, T.; Bernhardsson, S. O.; Degerbeck, J.; Henrikson, S.; Karlsson, A. (Jernkontoret Res. Dep., Stockholm, Swed.). British Corrosion Journal, 10(4), 174-80 (English) 1975. CODEN: BCRJA3. ISSN: 0007-0599.
- AB The corrosion resistance of the title **steel** [59028-57-8] contg. C 0.026-0.035, Si 0.34-0.49, Mn 0.45-0.64, Cr 17.9-18.4, Ni 0.11-0.27, Mo 2.27-2.34, and Ti 0.30-0.60% was studied in relation to std. **stainless steels** in H2SO4, H3PO4, and some common org. acids. The resistance of the title **steel** and other ferritic **steels** is dependent on surface prepn. The **passivity** increases in the order activated, ground, and pickled; hence the acid resistance of ground and pickled 18Cr2MoTi is better than that of AISI 316 [11107-04-3], but less in the activated state in the strongest acids. **Welds** were tested for intergranular corrosion in 10% HNO3 + 3% HF. Use of Ti = 10(C + N) for stabilization should ensure good resistance. Anodic polarization in NaCl at 25-90.degree. showed that 18Cr2MoTi has a better pitting-corrosion resistance than type 316. Pickling after **welding** improves the resistance of both types. Pickled 18Cr2MoTi has a better crevice-corrosion resistance in water with different chloride contents than Type 316, but the reverse is true for ground surfaces. In water contg. 100 ppm Cl- and 9 ppm O2 at 200.degree., only crevice corrosion occurred in AISI 430 [11109-52-7] and 18Cr2MoTi, while stress-corrosion cracking occurred on AISI 304 [11109-50-5] and 316. At 300.degree., Type 430 and 18Cr2MoTi were strongly pitted and stress-corrosion cracked, resp. Corrosion in a marine atm. for 3 yr was much less for pickled and ground 18Cr2MoTi than for Type 304. Oxidn. in air showed a scaling temp. of 1000.degree. for 18Cr2MoTi (higher than for 304 and 316).
- CC 55-9 (Ferrous Metals and Alloys)  
ST corrosion resistance **stainless steel**; acid corrosion resistance **stainless**; chloride corrosion **stainless steel**; atm corrosion **stainless steel**
- IT **Fluorides**, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(corrosion by phosphoric acid contg., of **stainless steels**)
- IT Scale (coating)  
(formation of, on **stainless steels** at elevated temps. in air)
- IT **Passivation**  
(of **stainless steels**, effect of activation and grinding and pickling on)
- IT Pickling  
(of **stainless steels**, effect on acid resistance)

## IT Welds

(**stainless steel**, corrosion resistance of austenitic and ferritic)

IT 64-18-6, reactions 64-19-7, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(corrosion by, of chromium-molybdenum-titanium **stainless steels**, at b.p.)

IT 144-62-7, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(corrosion by, of chromium-molybdenum-titanium **steel**, **passivation** effect on)

IT 7664-38-2, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(corrosion by, of **stainless steel**, effect of chlorides and **fluorides** on)

IT 11107-04-3 11109-50-5 11109-52-7

RL: PRP (Properties)  
(corrosion resistance of, compared with chromium-molybdenum-titanium **stainless steel**)

L21 ANSWER 7 OF 7 HCA COPYRIGHT 2003 ACS on STN

74:15288 Properties of **weld** joints of corrosion-resistant ultralow-carbon austenitic **steels**. Pavliichuk, G. A.; Yushkevich, Z. V.; Medovar, B. I.; Langer, N. A.; Yurchenko, Yu. F. (Inst. Elektrosvarki im. Patona, Kiev, USSR). Avtomaticheskaya Svarka, 23(7), 10-13 (Russian) 1970. CODEN: AVSVAU. ISSN: 0005-111X.

AB Automatic arc-**welding** of **steels** EP550, EP551, EP552, EP523, and EP554 sheets with 10 mm thickness was done under a **fluoride** nonoxidizing flux ANF-5 (CaF<sub>2</sub>-NaF) by wires of the same compn. as the matrix **metal**. **Welding** was done from 2 sides without separating the rims and without any space between them. The C content in the seams in all cases did not exceed 0.03%. The corrosion stability of the **welded** compds. was tested in a boiling aq. soln. of 15% HNO<sub>3</sub>, to which 10% K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> was added. The presence of the latter speeds up the dissoln. of **stainless steels**.

**Steel** EP553 has the max. corrosion stability and **steel** 1Kh18N9T has the min. corrosion stability. Out of the ultralow-C **steels**, the least stable were found to be **welded** samples made from **steel** EP551. The higher corrosion stability of **steel** EP553, which contains an esp. high amt. of Si, is explained by the fact that Si in Cr-Ni **steels** enters into the compn. of the **passivating** and oxide films and considerably increases the scale- and the corrosion-resistance of the **metal**.

CC 55 (Ferrous Metals and Alloys)

ST corrosion resistance low carbon austenitic **steels**; low carbon austenitic **steels** corrosion resistance; carbon low austenitic **steels** corrosion resistance; austenitic **steels** low carbon corrosion resistance; **steels** austenitic low carbon corrosion resistance

## IT Welds

(corrosion of **stainless steel**, austenitic)

=&gt; file weldasearch

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>>> SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN  
THE BASIC INDEX <<<

=> d L36 1-16 ti

- L36 ANSWER 1 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI The role of the **passivated** layer in protecting the  
**welded** joints made of G52/28 **steel** against the wet H2S  
active environment
- L36 ANSWER 2 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI **Welding** method and **welded** structure for forming  
**passivated** chromium oxide film on **weld**
- L36 ANSWER 3 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Method of forming oxide **passivation** film at **weld**  
portion and process apparatus
- L36 ANSWER 4 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Cleaning, pickling, and **passivation** of **stainless**  
**steels**
- L36 ANSWER 5 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Automated **welding** of thin plates by means of **passive**  
radiation sensors and electronic image processing
- L36 ANSWER 6 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI **Passivating** ferroalloys with silicoorganic hydrophobising  
liquids in the production of **welding** electrodes
- L36 ANSWER 7 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Chemical cleaning of 304 and 304-L **stainless steel**  
surfaces by the Nitradd **passivation** process
- L36 ANSWER 8 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Microsturctural characterisation of aluminium **passivated**  
**stainless steel weldments**
- L36 ANSWER 9 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Corrosion behaviour of austenitic **weld** and clad **metals**  
in accelerated boiling acid tests simulating **passive**  
conditions
- L36 ANSWER 10 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI A study of the pit initiation behaviour and **passivity** of  
ferritic **stainless steels**
- L36 ANSWER 11 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI THE CORROSION ENGINEER'S LOOK AT **PASSIVE ALLOYS**
- L36 ANSWER 12 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI THE DEVELOPMENT OF NON-MAGNETIZABLE, NON-**PASSIVATING** MANGANESE  
**STEELS**
- L36 ANSWER 13 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI DEVELOPMENT OF A MATHEMATICAL CORRELATION FOR THE **PASSIVATION**  
OF AN AUSTENITIC **WELD** MATERIAL IN AIR AND UNDER AN ELECTROLYTE
- L36 ANSWER 14 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI THE EFFECT OF **PASSIVATION** ON SPOT **WELDS** IN

## GALVANIZED STEEL SHEET

L36 ANSWER 15 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI THE INFLUENCE OF **PASSIVATION** FILMS ON ELECTROGALVANIZED STRIP  
**METAL** ON THE SUITABILITY OF THE MATERIAL FOR RESISTANCE SPOT  
**WELDING**

L36 ANSWER 16 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI EFFECTS OF THE **PASSIVATION** LAYERS OF GALVANIZED **METAL**  
STRIPS ON THEIR SUITABILITY TO SPOT **WELDING**

=> d L36 1-7, 9-10,12-16 all

L36 ANSWER 1 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 185998 WELDASEARCH  
TI The role of the **passivated** layer in protecting the  
**welded** joints made of G52/28 **steel** against the wet H2S  
active environment  
AU BOZU, P  
CS ISIM TIMISOARA. ROMANIA  
SO In: 60 Years of Scientific Co-operation in Welding. Proceedings, Jubilee  
Conference, Timisoara, 19-21 Nov.1997. Publ: Timisoara, Romania; SC  
Editura Sudura SRL; 1997. ISBN 973-98049-3-4. pp.145-150. 6 fig., 2 tab.  
DT Conference  
TC Experimental  
LA English  
NTE [See also Weldasearch 182329]  
AV Copy of original document available from TWI  
AB An investigation was carried out into the effect of an adherent ferrous  
sulphide layer upon the corrosion susceptibility of rolled and forged  
low **alloy** G52/28 **steel** (0.80-1.25%Mn, 0.18-0.27%C,  
max 0.35%Cu, max 0.35%Ni, max 0.25%Cr, max 0.07%Al) **welded**  
joints. Use of SAW (submerged arc **welding**) and MMA for  
preparing the **welded** joints is described. Results of room  
temperature NACE testing in wet H2S under tensile stress are presented  
for the most critical HAZ region for both **passivated** and  
nonpassivated specimens, and the favourable effect of the adherent  
ferrous sulphide is discussed.  
CC NUCLEAR ENGINEERING; CORROSION  
CT ARC **WELDING**; COATINGS; CORROSION; GASES; HEAT AFFECTED ZONE;  
HYDROGEN SULPHIDE; LOW **ALLOY STEELS**; MMA  
**WELDING**; NUCLEAR ENGINEERING; SOUR GAS; **STEELS**; STRESS  
CORROSION; SUBMERGED ARC **WELDING**; SULPHIDES; SURFACE  
CONDITIONS; SYMPOSIA; **WELD** ZONE; **WELDED** JOINTS

L36 ANSWER 2 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 177378 WELDASEARCH  
TI **Welding** method and **welded** structure for forming  
**passivated** chromium oxide film on **weld**  
AU OHMI, T  
CS JAPAN  
SO European Patent Application 692 336 A1. Filed: 14 Jan.1994 (Japan  
5438/93). Publ: 17 Jan.1996. 8 fig., 10 claims.  
DT Patent  
TC (Description)  
LA English  
NTE (Equivalent to PCT World Patent Application WO 94/15749. Publ: 21 July  
1994)  
AB Details are given of a method in which a corrosion-resistant chromium

No  
oxide **passivated** film is formed during **welding** (e.g. TIG **welding**). The procedures followed are: electropolishing of the material to be **welded** (e.g. **stainless steel** SUS-316L); controlled oxidation; either deposition of a chromium film, e.g. by electroplating, vapour deposition (e.g. CVD) etc., or else insertion of a chromium-containing insert between the workpieces; butt **welding**, resulting in a **passivated** oxide film on the surface of the **weld**. Very little out-gassing takes place on the **weld** surface. The **welded** material is suitable for use in ultra-high purity gas and water piping systems.

CC ARC WELDING

CT PATENTS; GTA **WELDING**; AUSTENITIC **STAINLESS STEELS**; CHROMIUM; OXIDES; SURFACE CONDITIONS; CORROSION; PROCESS PROCEDURES; SURFACE PREPARATION; SURFACES; OXIDATION; ELECTROPLATING; VAPOUR DEPOSITION; **METALLIC** COATINGS; INTERLAYERS; **WELDED JOINTS**; ARC **WELDING**; GAS SHIELDED ARC **WELDING**; **STAINLESS STEELS**; **STEELS**; PROCESS CONDITIONS; CHEMICAL REACTIONS; COATING METHODS; COATINGS

L36 ANSWER 3 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN

AN 170742 WELDASEARCH

TI Method of forming oxide **passivation** film at **weld** portion and process apparatus

AU OSAKA SANSEI KOGYO LTD

CS OSAKA SANSEI KOGYO LTD. JAPAN

SO European Patent Application 642 871 A1. Filed: 28 May 1993 (Japan 164376/92, 29 May 1992; 304142/92; 13 Nov.1992). Publ: 15 Mar.1995. 7 fig., 6 claims.

DT Patent

TC (Description)

LA English

NTE (Equivalent to PCT World Patent Application WO 93/24267, Publ: 9 Dec.1993)

AB A **welding** method for forming an oxide **passivation** film on a **weld** is claimed in which a back-shielding gas is flowed during the **welding** process (TIG **welding**, GMA **welding**, or laser **welding**). The back-shielding gas is an inert gas containing 1 ppb to 50 ppm oxygen and possibly 1-10% hydrogen. The oxide **passivation** film mainly contains chromium oxide. Examples describe formation of a **passivation** film on the inner surface of a SUS316L austenitic **stainless steel** pipe during TIG **welding**.

CC ARC WELDING

CT PATENTS; GTA **WELDING**; SHIELDING GASES; SURFACE CONDITIONS; LASER **WELDING**; OXYGEN; INERT GASES; HYDROGEN; OXIDES; FILMS; GMA **WELDING**; AUSTENITIC **STAINLESS STEELS**; BACKING TECHNIQUES; ARC **WELDING**; GAS SHIELDED ARC **WELDING**; GASES; PHOTON BEAM **WELDING**; RADIATION **WELDING**; **STAINLESS STEELS**; **STEELS**

CO OSAKA SANSEI KOGYO LTD

L36 ANSWER 4 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN

AN 167545 WELDASEARCH

TI Cleaning, pickling, and **passivation** of **stainless steels**

AU DILLON, C P

CS DILLON (C P) AND ASSOCIATES. USA

SO Materials Performance, vol.33, no.5. May 1994. pp.62-64. 4 Reference(s)

DT Journal

TC (Overview)

LA English  
AV Copy of original document available from TWI  
AB The cleaning, pickling and **passivating** treatments for **stainless steels** (e.g. type 300 series) to prevent or correct surface contamination and defects are overviewed. The causes of surface contamination (Fe oxides, heat tints) and defects (grinding marks) through fabrication, **welding**, handling and service conditions which can lead to localised corrosion are discussed. Cleaning to remove iron oxides by pickling with nitric acid-HF mixture or removing heat tints by abrasive disks, followed by degreasing if it is required, are described. After cleaning, **stainless steels** are self-**passivating** upon exposure to air and moisture. The surface **passive** film can be augmented by chemical or electrochemical **passivation** treatments. **Passivation** of free machining grades and 12-14%Cr **stainless steels** is described.

CC ANCILLARY OPERATIONS  
CT AUSTENITIC **STAINLESS STEELS**; SURFACE PREPARATION; IMPURITIES; DEFECTS; GRINDING; OXIDES; **STAINLESS STEELS**; **STEELS**; SURFACE CONDITIONS; POST **WELD** OPERATIONS

L36 ANSWER 5 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 146733 WELDASEARCH  
TI Automated **welding** of thin plates by means of **passive** radiation sensors and electronic image processing  
AU BODERIE, E E M  
SO Thesis. Technische Hogeschool Eindhoven, Department of Electrical Engineering, 5600MB Eindhoven, Netherlands; Aug.1986. 81pp.  
DT Dissertation  
TC Miscellaneous  
LA Dutch  
NTE [Report ETN-87-90142 (N87-28907/0)] [See also Weldasearch 142559]  
AB The use of infrared sensors for torch guidance, and the automation of equipment for **welding** of sheet, were investigated. A theoretical investigation was made of the guidance of the torch along the joint by measuring the temperature profile along a line segment perpendicular to the joint, and slightly ahead of the torch, using an infrared sensor. The automation of an installation for TIG **welding** of **stainless steel** sheet, using a vision system to guide the torch along the joint during **welding**, was studied; the practical feasibility and cost effectiveness of this approach are examined.

CT ARC **WELDING**; CONTROLS; GAS SHIELDED ARC **WELDING**; GTA **WELDING**; GUIDANCE SYSTEMS; IMAGING; INFRARED; JOINT TRACKING; OPTICS; RADIATION; **STAINLESS STEELS**; **STEELS**; TEMPERATURE DISTRIBUTION; THERMOGRAPHY; THESES

L36 ANSWER 6 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 133414 WELDASEARCH  
TI **Passivating** ferroalloys with silicoorganic hydrophobising liquids in the production of **welding** electrodes  
AU GUMEN, V S; SHEVCHENKO, L A; OS'MAKOV, O G; ANGLICHANOV, D I  
SO Automatic Welding, vol.38, no.3. Mar.1985. pp.51-53. 3 fig., 2 tab., 9 Reference(s)  
DT Journal  
TC Miscellaneous  
LA English; Russian  
NTE [translation of Avtomaticheskaya Svarka]  
AV Copy of original document available from TWI



AB *MS* Investigations into the use of silicone liquids (siloxane and siliconate polymers) in the manufacture of electrode coatings are reported. Details are given of: the composition of the linear polymers; their mode of action in **passivating** ferroalloy powders; their experimental use in the preparation of electrode coatings; and the properties of the electrodes produced.

CT CHEMICAL REACTIONS; COMPOSITION; COVERED ELECTRODES; ELECTRODE COATINGS; ELECTRODE PRODUCTION; FILLER MATERIALS; INORGANIC COMPOUNDS; **IRON ALLOYS**; ORGANIC COMPOUNDS; POWDER; SALTS; SILICATES; SURFACE CONDITIONS; UTILISATION

L36 ANSWER 7 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 129129 WELDASEARCH  
TI Chemical cleaning of 304 and 304-L **stainless steel** surfaces by the Nitradd **passivation** process  
AU JOHNSON, T M  
SO Report MLM-3200 (DE85003714). Publ: Miamisburg, OH 45342, USA; Monsanto Research Corp., Mound Facility; 27 Nov.1984. 10pp.  
DT Report  
TC Miscellaneous  
LA English  
AB Auger Electron Spectroscopy (AES) was used to compare two chemical cleaning processes used to prepare 304 and 304-L **stainless steels** for **welding**: an existing production procedure and a new procedure adapted from it. The two processes gave comparable results; the new process is being used to prepare specimens for **welding** experiments.

CT CHEMICAL ANALYSIS; COMPARISONS; MICROANALYSIS; REPORTS; SPECTROSCOPY; SURFACE CONDITIONS; SURFACE PREPARATION

L36 ANSWER 9 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 117726 WELDASEARCH  
TI Corrosion behaviour of austenitic **weld** and clad **metals** in accelerated boiling acid tests simulating **passive** conditions  
AU PRASAD RAO, K; PRASANNAKUMAR, S  
SO Corrosion, vol.42, no.1. Jan.1986. pp.1-10. 12 fig., 5 tab., 27 Reference(s)  
DT Journal  
TC Miscellaneous  
LA English  
NTE [See also Weldasearch 74460.]  
AV Copy of original document available from TWI  
AB The effects of delta ferrite content, **welding** process and heat treatment on corrosion of **weld** and clad **metal** were investigated for austenitic **stainless steels**.  
*U* **Welds metal** was prepared by autogenous TIG **welding** of AISI 304. AISI grades 308, 347 and 309 Cb were deposited onto mild **steel** IS 2062 (0.18%C, 0.7%Mn) by MMA, MIG (argon shielding gas, 1 or 2 layers, two speeds), CO2 (2 or 3 layers), or submerged arc strip (positive or negative polarity, various current values) cladding. The composition and ferrite number of the deposited **metals** were determined. Specimens were exposed to ASTM A262 "B" (ferric sulphate + sulphuric acid) and "E" (copper + copper sulphate + sulphuric acid) conditions. Wrought AISI 304 and cast CF-8 were tested for comparison and some specimens were tested in boiling nitric acid. The effect of heat treatment at 650 deg.C for up to 100 h on corrosion resistance was determined. Specimens were examined for intergranular and general corrosion. Mechanisms of intergranular corrosion are discussed.

CT **ARC WELDING; AUSTENITIC STAINLESS STEELS;**

CO2 **WELDING**; COMPOSITION; CORROSION; CURRENT; DELTA; FERRITE;  
FILLER MATERIALS; GAS SHIELDED ARC **WELDING**; GMA  
**WELDING**; GTA **WELDING**; HEAT TREATMENT; INTERGRANULAR  
CORROSION; MAG **WELDING**; MECHANISMS; MICROSTRUCTURE; MIG  
**WELDING**; MILD **STEEL**; MMA SURFACING; POLARITY; PROCESS  
CONDITIONS; PROCESS PARAMETERS; REFERENCE LISTS; SPEED;  
**STAINLESS STEELS**; **STEELS**; STRIP ELECTRODES;  
SUBMERGED ARC SURFACING; SURFACING; UNALLOYED **STEELS**;  
**WELD METAL**

L36 ANSWER 10 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 107245 WELDASEARCH  
TI A study of the pit initiation behaviour and **passivity** of  
ferritic **stainless steels**  
AU CIESLAK, W R  
SO Thesis (Ph.D). Rensselaer Polytechnic Institute, Troy, NY 12181, USA;  
1983. 299pp.  
DT Dissertation  
TC Miscellaneous  
LA English  
AB The resistance of ferritic **stainless steels** to pit  
initiation was studied in NaCl and NaBr electrolytes as a function of Cr  
and Mo contents, microstructure and temperature. The properties of the  
**passive** films corresponding to various experimental conditions  
were correlated with pitting behaviour. At 80 deg.C, 2% or 8%Mo was more  
effective than 18% or 28%Cr for increasing pitting resistance. At 260  
deg.C, pitting resistance was determined by Cr **alloy** content.  
Features such as inclusions, grain boundaries and autogenous single  
phase ferritic **welds** had no effect on pitting resistance. The  
mechanism of **passivity** and pitting resistance due to Cr and Mo  
is discussed.

CT **ALLOYING** ADDITIONS; COMPOSITION; CORROSION; CR ADDITIONS;  
DEFECTS; FERRITIC **STAINLESS STEELS**; GRAIN  
BOUNDARIES; HALIDES; INCLUSIONS; MECHANISMS; MICROSTRUCTURE; MO  
ADDITIONS; PITTING CORROSION; SALTS; **STAINLESS STEELS**  
; **STEELS**; SURFACE CONDITIONS; TEMPERATURE; THESES;  
**WELD METAL**

L36 ANSWER 12 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 38087 WELDASEARCH  
TI THE DEVELOPMENT OF NON-MAGNETIZABLE, NON-PASSIVATING MANGANESE  
**STEELS**  
AU ARNTZ, H E; DIETRICH, H; HEIMANN, W  
SO DEW TECHNISCHE BERICHTE, VOL.12, NO.1. FEB.1972. PP.20-25. 11 REF.  
DT Journal  
TC Miscellaneous  
LA German  
AB DEVELOPMENTS TOWARDS A SPECIAL PURPOSE NON-MAGNETIC NON-  
**PASSIVATING MN STEEL**, WITH, IF POSSIBLE, PRICE AND  
PROPERTIES ATTRACTIVE COMPARED WITH THOSE OF AUSTENITIC HIGH CR-NI  
**STEELS**, ARE DESCRIBED. THE MECHANICAL PROPERTIES OF  
**STEEL** WITH 20PER CENT MN AND 0.5PER CENT C AND OF **STEELS**  
WITH SMALL ADDITIONS OF SI, N, CU, V, NB AND CR AFTER HEAT TREATMENTS AT  
950, 1000, OR 1050 DEG.C AND WATER-QUENCHING ARE PRESENTED. ADDITIONS OF  
SI AND V IMPROVED THE STRENGTH. A 0.55PER CENT C : 1.5PER CENT SI :  
20.5PER CENT MN : 0.25PER CENT V : 0.05PER CENT N HAD BEST STRENGTH AND  
DUCTILITY WITH GOOD SUB-ZERO TEMPERATURE PROPERTIES. DIAGRAMS SHOW THE  
EFFECTS OF SOLUTION TREATMENTS AT VARIOUS TEMPERATURES ON THE 0.2PER  
CENT PROOF STRESS AND THE EFFECT OF TEST TEMPERATURE ON THE ULTIMATE  
TENSILE STRENGTH AND 0.2PER CENT PROOF STRESS OF ONE OF THE

**ALLOYS.** OTHER MATTERS DISCUSSED INCLUDE SUSCEPTIBILITY TO INTERCRYSTALLINE CORROSION AS INFLUENCED BY CR PRECIPITATION OF V AND INFLUENCES ON CORROSION PROPERTIES, **WELDING** PROPERTIES AND HOT CRACKS.

CT **ALLOYING** ADDITIONS; AUSTENITE; COMPOSITION; CORROSION; CRACKING; DEFECTS; DUCTILITY; HIGH **ALLOY STEELS**; HOT CRACKING; MANGANESE; MECHANICAL PROPERTIES; **STEELS**; STRENGTH; **WELDABILITY**

L36 ANSWER 13 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 24369 WELDASEARCH  
TI DEVELOPMENT OF A MATHEMATICAL CORRELATION FOR THE **PASSIVATION** OF AN AUSTENITIC **WELD** MATERIAL IN AIR AND UNDER AN ELECTROLYTE

AU LAJAIN, H

SO WERKSTOFFE U. KORROSION, JAN. 1970, 21, (1), 28-32.

DT Journal

TC Miscellaneous

LA German

AB THE INFLUENCE OF THE EXPOSURE TIME OF SPECIMENS OF AUSTENITIC **WELD** MATERIALS (65 PERCENT NI-15 PERCENT CR-0.9 PERCENT MO-2.8 PERCENT NB AND 9.5 PERCENT NI-19 PERCENT CR **STEEL**) ON THE POTENTIAL/TIME CURVES WAS STUDIED. A MICRO-CAPILLARY METHOD WITHOUT CURRENT WAS USED. A **PASSIVATION** EQUATION CONTG.A PROPORTIONALITY FACTOR WHICH ASSUMES A CHARACTERISTIC VALUE FOR DIFFERENT MATERIALS IS PRESENTED. THE CURVES OBTAINED ENABLE THE CORRELATION BETWEEN POTENTIAL AND DURATION OF TEST AND EXPOSURE PERIOD TO BE ESTABLISHED.

CT AUSTENITE; COMPUTATION; CORROSION; **STAINLESS STEELS**; **STEELS**; THEORETICAL INVESTIGATIONS; THEORY; **WELD METAL**

L36 ANSWER 14 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 20645 WELDASEARCH  
TI THE EFFECT OF **PASSIVATION** ON SPOT **WELDS** IN GALVANIZED **STEEL** SHEET

AU BECKER, H

SO SCHWEISSEN U.SCHNEIDEN, NOV. 1968, 20, (11), 571-575.

DT Journal

TC Miscellaneous

LA German

AB THE SURFACE OF GALVANIZED SHEET MAY BE **PASSIVATED**, AND THIS CHANGES ITS BEHAVIOUR DURING SPOT **WELDING**. THE EFFECTS OF TWO ~~PHOSPHATING TREATMENTS USED FOR PASSIVATION~~ WERE INVESTIGATED. THE QUALITY OF ELECTRICAL RESISTANCE SPOT **WELDS** SUBSEQUENTLY MADE WAS DETERMINED BY ELECTRICAL-RESISTANCE AND SHEAR-STRENGTH MEASUREMENTS AND BY METALLOGRAPHIC EXAMINATION. SATISFACTORY SPOT **WELDS** WERE OBTAINED AFTER **PASSIVATION** WITH A WEAK PHOSPHATE SOLUTION.

CT COATINGS; RESISTANCE **WELDING**; SPOT **WELDING**; **STEELS**; SURFACE CONDITIONS; ZINC

L36 ANSWER 15 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 11743 WELDASEARCH  
TI THE INFLUENCE OF **PASSIVATION** FILMS ON ELECTROGALVANIZED STRIP **METAL** ON THE SUITABILITY OF THE MATERIAL FOR RESISTANCE SPOT **WELDING**

AU BECKER, H

SO WDG RES. ABR, VOL 13, NO 7, AUG/SEPT 1967, PP.2-20, 16 FIG, 1 TABL.4 REF.

DT Journal

TC Miscellaneous  
LA English  
CT COATINGS; RESISTANCE **WELDING**; SPOT **WELDING**;  
**STEELS**; STRIP; ZINC

L36 ANSWER 16 OF 16 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 10683 WELDASEARCH  
TI EFFECTS OF THE **PASSIVATION** LAYERS OF GALVANIZED **METAL**  
STRIPS ON THEIR SUITABILITY TO SPOT **WELDING**  
AU BECKER, H  
SO SCHWEISS. SCHNEID., VOL 18, NO 12, DEC 1966, PP. 586-91, 16 FIG, 1 TABL,  
4 REF.  
DT Journal  
TC Miscellaneous  
LA German  
AB DESCRIPTION OF THE METHOD USED FOR DETERMINING THE EFFECTS OF THE  
**PASSIVATION** LAYERS MADE OF ZINC PHOSPHATE OR OF CHROMATE;  
RELATIONSHIPS BETWEEN **PASSIVATION** LAYER, TOTAL STRENGTH,  
TENSILE STRENGTH AND SUITABILITY TO SPOT **WELDING**. RESULTS OF  
THE TESTS.  
CT COATINGS; MECHANICAL PROPERTIES; RESISTANCE **WELDING**; SPOT  
**WELDING**; **STEELS**; STRENGTH; **WELDABILITY**;  
**WELDED JOINTS**

=> d L30 1-7 ti

L30 ANSWER 1 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Effects of environmental and metallurgical conditions on the  
**passive** and localised dissolution of Ti-0.15%Pd

L30 ANSWER 2 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Effects of environmental electrochemical and metallurgical variables on  
the **passive** and localised dissolution of Ti grade 7 [Ti,  
0.15%Pd **alloy**]

L30 ANSWER 3 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Methods for sampling and analysing gases from welding and allied  
processes

L30 ANSWER 4 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Characterising integrated circuit bond pads

L30 ANSWER 5 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Failure mechanisms of wire and die bonding

L30 ANSWER 6 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI Methods for sampling and analysing gases from welding and allied  
processes

L30 ANSWER 7 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
TI INFLUENCE OF **ALLOYING** ELEMENTS ON THE CORROSION RESISTANCE OF  
WELDED JOINTS IN MONEL (**METAL**) **ALLOY**

=> d L30 1-2, 5-7 all

L30 ANSWER 1 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 204374 WELDASEARCH  
TI Effects of environmental and metallurgical conditions on the

**passive** and localised dissolution of Ti-0.15%Pd  
AU BROSSIA, C S; CRAGNOLINO, G A  
CS SOUTHWEST RESEARCH INSTITUTE. USA  
SO Corrosion, vol.57. no.9. Sept.2001. pp.768-776. 10 fig., 1 tab., 33  
Reference(s)  
DT Journal  
TC Experimental  
LA English  
NTE [Similar paper: Paper 00211 presented at Corrosion 2000, 55th Annual  
Conference and Exposition, Orlando, FL, 26-31 Mar.2000. 16pp;  
Weldasearch 200661]  
AV Copy of original document available from TWI  
AB The influence of chloride and **fluoride** concentrations, pH,  
temperature and weldments on the corrosion of Ti grade 7 (Ti, 0.155%Pd,  
25 mm thickness) was investigated. Weldments were made using titanium  
welding wire (Ti, 0.184%Pd). The localised corrosion in chloride  
solutions, **passive** dissolution and effects of **fluoride**  
on corrosion behaviour are discussed. Welded specimens tended to have  
lower breakdown and repassivation potentials than did the wrought  
material under identical conditions.  
CC CORROSION  
CT REFERENCE LISTS; CORROSION; HALIDES; WELDED JOINTS; TITANIUM; NUCLEAR  
ENGINEERING; SALTS; SELECTIVE CORROSION

L30 ANSWER 2 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 200661 WELDASEARCH  
TI Effects of environmental electrochemical and metallurgical variables on  
the **passive** and localised dissolution of Ti grade 7 [Ti,  
0.15%Pd alloy]  
AU BROSSIA, C S; CRAGNOLINO, G A  
CS SOUTHWEST RESEARCH INSTITUTE. USA  
SO Paper 00211 presented at Corrosion 2000, 55th Annual Conference and  
Exposition, Orlando, FL, 26-31 Mar.2000. Publ: Houston, TX 77218-8340,  
USA; NACE International; 2000. 16pp. 11 fig., 1 tab., 31 Reference(s)  
DT Conference  
TC Experimental  
LA English  
NTE [CD-ROM]  
AB The influence of chloride and **fluoride** concentrations, pH,  
temperature and weldments on the corrosion of Ti grade 7 (Ti, 0.155%Pd,  
25 mm thickness) was investigated. Weldments were made using titanium  
welding wire (Ti, 0.184%Pd). The localised corrosion in chloride  
solutions, **passive** dissolutions and effects of  
**fluoride** on corrosion behaviour are discussed. Welded specimens  
tended to have lower breakdown and repassivation potentials than did the  
wrought material under identical conditions.  
CC CORROSION  
CT SYMPOSIA; REFERENCE LISTS; CORROSION; HALIDES; WELDED JOINTS; TITANIUM;  
NUCLEAR ENGINEERING; SALTS; SELECTIVE CORROSION

L30 ANSWER 5 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 158043 WELDASEARCH  
TI Failure mechanisms of wire and die bonding  
AU TRIGWELL, S  
SO Solid State Technology, vol.36, no.5. May 1993. pp.45-46, 48-49. 5 fig.,  
13 Reference(s)  
DT Journal  
TC Miscellaneous  
LA English  
AV Copy of original document available from TWI

AB Causes of the failure of integrated circuits (IC's) and packaging are discussed including aluminium corrosion in bond pads or wire, **fluorine** and water in IC manufacturing. Ways to reduce corrosion as a failure mode in IC's are: moisture control, including dry sealing ambient conditions; baking before sealing; using materials with low permeability for lumetic packages and for moulded packages; high integrity die **passivation** films and hydrophobic die coatings; and clean die assembly processing with particular care to avoid solvent contamination and residual hydrocarbon contamination. Analytical techniques used in bond pad failure analysis are also discussed e.g. scanning electron microscope (SEM), electron-beam instruments and Auger electron spectrometer (AES).

CT ADHESIVE BONDING; AL CU **ALLOYS**; ALUMINIUM; ALUMINIUM **ALLOYS**; CHEMICAL ANALYSIS; COPPER; CORROSION; ELECTRIC CIRCUITS; ELECTRON MICROSCOPES; ELECTRONIC DEVICES; ENCAPSULATION; FAILURE; GOLD; HALOGENS; INTEGRATED CIRCUITS; LEADS; LIGHT **METALS**; MEASURING INSTRUMENTS; MICROJOINING; MICROSCOPES; PACKAGING; PRINTED CIRCUITS; REFERENCE LISTS; SEMICONDUCTOR DEVICES; SOLDERED JOINTS; WELDED JOINTS; WIRE

L30 ANSWER 6 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 123408 WELDASEARCH  
TI Methods for sampling and analysing gases from welding and allied processes  
AU AMERICAN WELDING SOCIETY  
SO Standard ANSI/AWS F1.5-87. Publ: Miami, FL 33125, USA; American Welding Society; 1987. ISBN 0-87171-270-9. 44pp. 6 tab., 3 Reference(s)  
DT Standard  
TC Miscellaneous  
LA English  
NTE [537] [See also Weldasearch 1619; and Weldasearch 123407]  
AB Recommended sampling methods and analysis techniques are given for the pollutant gases, ozone, carbon monoxide, nitric oxide, nitrogen dioxide and gaseous **fluoride** in welding environments. A summary of analytical techniques (instrumental methods, detector tubes, **passive** dosimeters, chemical methods, interference and calibration) is given, as are the basic requirements for breathing zone and background sampling. Appendices give details of techniques for the gases: O3 (0.05 to 1 ppm); CO (5 to 500 ppm); NO (1 to 100 ppm); NO2 (0.5 to 25 ppm); gaseous **fluorides** (0.005 to 5 mg per cu m). In each case a preferred method, with procedure, calibration, precision and accuracy is given.

CT ANALYSIS EQUIPMENT; ANALYSIS TECHNIQUES; ANALYTICAL DATA; BACKGROUND SAMPLING; BREATHING ZONE SAMPLING; CARBON MONOXIDE; DATA; F IN FUME; FUMABS; GAS ANALYSIS; GASES; INTERFERENCES; OXIDES OF NITROGEN; OZONE; POLLUTANT GASES; POLLUTANTS; PRECISION; RECOMMENDATIONS; RULES; SAFETY; SAMPLING; SENSITIVITY; STANDARDS; TOXIC MATERIALS; USA; FUME

L30 ANSWER 7 OF 7 WELDASEARCH COPYRIGHT 2003 TWI on STN  
AN 40233 WELDASEARCH  
TI INFLUENCE OF **ALLOYING** ELEMENTS ON THE CORROSION RESISTANCE OF WELDED JOINTS IN MONEL (**METAL**) **ALLOY**  
AU KUZ'MIN, G S; BITINSKAYA, L N  
SO WELDING PRODUCTION, VOL. 19, NO. 8. AUG. 1972. PP. 57-60. 4 FIG., 1 TABLE, 9 REF.  
DT Journal  
TC Miscellaneous  
LA English  
NTE TRANSLATION OF SVAROCHNOE PROIZVODSTVO.  
AB THE CORROSION RESISTANCE OF TIG WELDED MONEL IN HYDROGEN

*N* FLUORIDE AT 550 DEG.C. HAS BEEN STUDIED. WELD **METAL** COMPOSITIONS WERE VARIED BY USING A POWDER FILLED WIRE. RANGES OF ALUMINIUM, TITANIUM AND MAGNESIUM WERE USED. THE CORROSION RATE OF ALL WELDS DECREASES WITH TIME DUE TO **PASSIVATION** BUT ADDITION OF **ALLOYING** ELEMENTS IN GENERAL INCREASES THE CORROSION RATE. ALUMINIUM AND MAGNESIUM ABOVE CERTAIN CONCENTRATIONS REDUCE THE CORROSION RATE.

CT ACIDS; **ALLOYING** ADDITIONS; ARC WELDING; COMPOSITION;  
CORROSION; GTA WELDING; MONEL; NICKEL **ALLOYS**; WELD  
**METAL**; WELDED JOINTS

=> file metadex

FILE 'METADEX' ENTERED AT 14:09:12 ON 12 AUG 2003

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FILE LAST UPDATED: 11 JUL 2003

<20030711/UP>

FILE COVERS 1966 TO DATE.

>>> METADEX HAS BEEN ENHANCED --> SEE NEWS <<<

>>> SIMOULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN THE  
BASIC INDEX (/BI) <<<

=> d L46 1-3 ti

L46 ANSWER 1 OF 3 METADEX COPYRIGHT 2003 CSA on STN

TI Surface preparation of the all-aluminum car body before painting.

L46 ANSWER 2 OF 3 METADEX COPYRIGHT 2003 CSA on STN

TI Tantalum and Niobium.

L46 ANSWER 3 OF 3 METADEX COPYRIGHT 2003 CSA on STN

TI Refractory **Metals** and Their Application in the Chemical Process  
Industry.

=> d L46 1-3 all

L46 ANSWER 1 OF 3 METADEX COPYRIGHT 2003 CSA on STN

AN 1997(2):57-272 METADEX

TI Surface preparation of the all-aluminum car body before painting.

AU Roland, W.A. (Henkel Technimetal)

SO Metal Finishing (**Dec. 1993**) 91, (12), 57-60, Photomicrographs,  
Graphs, 12 ref.

ISSN: 0026-0576

DT Journal

CY United States

LA English

*N* AB Aluminum surfaces require conversion coatings to assure corrosion  
resistance, paint adhesion, storage, press forming, **welding** and  
adhesive bonding. Higher **fluoride** contents (relative to  
**steel** substrates) are needed to produce phosphate coadings of  
proper thickness and durability (dense, non-porous films). Processing  
steps and needed changes are described and discussed in detail in this  
report. Copper-containing Al **alloys** should be avoided to prevent  
storage and **weldability** problems. A chromate-free  
**passivation** rinse process has been developed.

CC 57 Finishing

CT Journal Article; Aluminum: Coating; Automotive bodies: Coating; Surface

pretreatments; Painting  
ET Al

L46 ANSWER 2 OF 3 METADEX COPYRIGHT 2003 CSA on STN

AN 1988(3):35-352 METADEX

TI Tantalum and Niobium.

AU Hunkeler, F.J.

CS NRC

SO Process Industries Corrosion-the Theory and Practice  
National Association of Corrosion Engineers, 1440 South Creek Dr.,  
Houston, Texas 77084, USA. 1986. 545-549  
See also AN: 88(3):72-123

DT Book

LA English

AB Tantalum and Nb are intrinsically reactive **metals** which  
spontaneously **passivate** so effectively in many otherwise very  
aggressive chemical conditions that they can be considered noble.  
Nb Tantalum, especially, is virtually inert in all acidic media if no  
**fluoride** or sulfur trioxide are present. These **metals**  
also have favorable thermal and mechanical properties for use in the  
chemical process industry as both direct containment equipment and  
ancillary components which require high reliability and extensive service  
life. They can be readily fabricated and **welded** into practically  
any component configuration needed.-AA

CC 35 CORROSION

CT Tantalum: Corrosion; Niobium: Corrosion; Corrosion resistance; Inorganic  
acids: Environment; Chemical processing industry

ET Nb

L46 ANSWER 3 OF 3 METADEX COPYRIGHT 2003 CSA on STN

AN 1987(8):35-2231 METADEX

TI Refractory **Metals** and Their Application in the Chemical Process  
Industry.

AU Hormann, M.; Lupton, D.; Heinke, H.; Horn, E.-M.

SO Z. Werkstofftech. (May 1987) 18, (5), 139-147

ISSN: 0049-8688

DT Journal

LA German

AB Special **metals**, such as titanium, zirconium and tantalum, are  
being used increasingly for chemical plant. The exceptional resistance of  
special **metals** to many corrosive chemicals-they show it even at  
high temperatures and pressures-arises not from natural immunity but from  
the formation of a protective oxide **passive** layer on the  
Nb **metal** surface. Special **metals** are well suited for  
**welding**. Their reactions with gases of the atmosphere must be  
taken into account though. **Welding** is therefore possible only  
under inert gas or a high vacuum. Similarly, **alloying** with  
**iron**-based materials during **welding** must be avoided  
under all circumstances. It should be taken into consideration that the  
melting point of Ta, for example, is about twice as high as that of  
**steel**. Ta and Nb are machined with high-speed cutting  
**steels**; the cutting speed and cutting angle are similar to those  
used for **stainless steels**. In detail, the outstanding  
properties of special **metals** in chemical plant are the stability  
of Ti under oxidizing conditions, the stability of Zr under reducing and  
alkaline conditions, the resistance of Mo to hydrofluoric acid and  
**fluoride** and the stability of Ta under oxidizing and reducing  
conditions. In pure mineral acids the **passive** behaviour  
generally improves in the order Ti-Zr-Ta. Except where Mo is concerned,  
the medium should not contain **fluoride**. The material with the



widest range of applications is Ta. The addition of Nb as an **alloying** element leads to favourably priced but similarly resistant materials whose prospects of becoming established in the chemical industry and playing a part similar in importance to that of Ta itself are good.-AA

CC 35 CORROSION

CT Titanium: Corrosion; Tantalum: Corrosion; Zirconium: Corrosion; Molybdenum: Corrosion; Chemical processing industry; Corrosion resistance; **Passivation**; Halides: Environment; Reducing atmospheres; Corrosion rate; Sulfuric acid: Environment

ET Ta; Nb; Ti; Zr; Mo; Ta\*Ti\*Zr; Ta sy 3; sy 3; Ti sy 3; Zr sy 3; Ti-Zr-Ta

=> file japio, wpix

FILE 'JAPIO' ENTERED AT 14:09:50 ON 12 AUG 2003

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FILE 'WPIX' ENTERED AT 14:09:50 ON 12 AUG 2003

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=> d L52 1-19 ti

L52 ANSWER 1 OF 19 JAPIO (C) 2003 JPO on STN  
TI BELLOWS APPLIED WITH SURFACE TREATMENT

L52 ANSWER 2 OF 19 JAPIO (C) 2003 JPO on STN  
TI **WELDING** METHOD OF **WELDING** MEMBER APPLIED WITH **FLUORIDIZED PASSIVE** STATE TREATMENT, REFLUORIDIZED **PASSIVE** STATE TREATMENT AND **WELDING** PARTS

L52 ANSWER 3 OF 19 JAPIO (C) 2003 JPO on STN  
TI PRESSURE DETECTOR

L52 ANSWER 4 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Phosphation of **metal** surface, used for production of component, body part or pre-assembled element in car, aerospace, construction or furniture industry or equipment, uses solution containing zinc and manganese ions.

L52 ANSWER 5 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Coating of wire, mesh or sheet using an aqueous dispersion of a UV cross-linkable water soluble and/or water dispersible resin, a wax deforming additive, a photoinitiator and a corrosion inhibitor..

L52 ANSWER 6 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Coating **metal** strip e.g. for vehicle, aircraft or household appliance part includes application of lacquer-like coat with aqueous polymer dispersion containing fine inorganic particles, lubricant and corrosion inhibitor.

L52 ANSWER 7 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Aqueous acidic solution for forming rare earth element-containing conversion coating on **metallic** surfaces comprises rare earth elements containing species, oxidants, and accelerators.

L52 ANSWER 8 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI **Stainless steel** has **passive fluoride** film formed on its surface.

- L52 ANSWER 9 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI **Welding** method for **fluorine** gas supply piping -  
involves increasing hydrogen content in **welding** gas during  
**welding**.
- L52 ANSWER 10 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Coating for electrodes used in **welding** austenitic chromium  
-nickel **steels** - contains marble, cerium di oxide, soda,  
yttrium-silicon **alloy**, mica, ferrotitanium, ferrosilicon and  
**fluorspar**.
- L52 ANSWER 11 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI **Passivating metal** surface - by coating with conductive  
layer contg. cpd. of hetero-poly acid, iso-poly acid, **fluoro-**  
complex cpd. and/or acetyl acetate.
- L52 ANSWER 12 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Dry **passivation** of magnesium particles - by treatment with  
corrosion inhibitor powder.
- L52 ANSWER 13 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI **Steel** plate with high **welding** and anti-corrosion  
properties - for seam-**welding**, has inner plating layer of  
nickel-tin **alloy** and **passive** hydrated chromium outer  
plating.
- L52 ANSWER 14 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Preventing corrosion **welded** parts of **stainless**  
**steel** - by removing oxide scale, smoothing and opt. coating with  
**passivation** film.
- L52 ANSWER 15 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Preparing magnesium **alloy** surfaces for contact **welding**  
operations - includes etching in di chromate and nitric acid soln. and  
**passivating** in and ammonium bi **fluoride** soln..
- L52 ANSWER 16 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Electrolytically descaling **alloyed steel** - by  
connecting to an anode and contacting with water-resisting material  
impregnated with phosphate electrolyte.
- L52 ANSWER 17 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Descaling **stainless steel** using strongly acid aq.  
soln. - contg. sulphuric acid, nitric acid and hydrofluoric acid and  
thickener to form spreadable paste.
- L52 ANSWER 18 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Coating of electrodes for **welding steels** - includes  
master **alloy** of silicon, manganese, aluminium, zirconium and  
titanium.
- L52 ANSWER 19 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
TI Tin/**iron alloy** plate for internally lacqu - ered cans  
from **fluoride** electrolyte.

=> d L52 1-2,4,7-9,11-15,18 all

L52 ANSWER 1 OF 19 JAPIO (C) 2003 JPO on STN

AN 1999-236971 JAPIO  
TI BELLOWS APPLIED WITH SURFACE TREATMENT  
IN OMI TADAHIRO; NITTA TAKEHISA; MIZUNO YOSHIYUKI; TAKANO HARUYUKI  
PA OMI TADAHIRO  
ULTLA CLEAN TECHNOLOGY KAIHATSU KENKYUSHO:KK  
PI JP 11236971 A 19990831 Heisei  
AI JP 1998-339066 (JP10339066 Heisei) 19981130  
PRAI JP 1997-331951 19971202  
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999  
IC ICM F16J003-04  
ICS C23C022-34  
ICA H01L021-3065  
AB PROBLEM TO BE SOLVED: To improve corrosion resistance or plasma resistance and extend life by forming a **fluoride passive** film on the whole or part of the inner and outer faces of a bellows main body or plates and connection sections forming it.  
SOLUTION: As an example of application to the bellows used in a semiconductor manufacturing device, a chamber 101 using **welded** bellows is decompressed by an exhaust system, an electrode 102 to be applied with high-frequency power is installed, high-frequency power is applied to the electrode 102 via a high-frequency power supply 103, a coaxial cable 104 and a matching circuit 105, and plasma 106 is excited. The chamber 101 is filled with the corrosive gas atmosphere 107, the **welded** bellows made of austenitic **stainless steel** are exposed to corrosive gas, and a surface treatment is applied to a bellows main body 108. An electroless Ni-P plated film is formed on the surface of the bellows main body 108 as the surface treatment, and a **fluoride passive** film 109 of  $\text{NiF}_{2\text{SB}}$  can be formed by **fluoridization**.  
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L52 ANSWER 2 OF 19 JAPIO (C) 2003 JPO on STN  
AN 1999-104836 JAPIO  
TI **WELDING METHOD OF WELDING MEMBER APPLIED WITH FLUORIDIZED PASSIVE STATE TREATMENT, REFLUORIDIZED PASSIVE STATE TREATMENT AND WELDING PARTS**  
IN OMI TADAHIRO; NITTA TAKEHISA; SHIRAI YASUYUKI; NAKAMURA OSAMU  
PA OMI TADAHIRO  
ULTLA CLEAN TECHNOLOGY KAIHATSU KENKYUSHO:KK  
PI JP 11104836 A 19990420 Heisei  
AI JP 1997-322361 (JP09322361 Heisei) 19971107  
PRAI JP 1997-227121 19970808  
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999  
IC ICM B23K009-16  
ICS B23K009-23  
AB PROBLEM TO BE SOLVED: To provide a **welding** method of a **welding** member applied with a **fluoridized passive** state treatment, which does not generate a particle or dust in the case of executing a refluoridized **passive** state treatment after **welding** and is excellent in resistance to a **fluorine** base gas and to provide a refluoridized **passive** state treatment method.  
SOLUTION: In the case that a **welding** member made of a **stainless steel** applied with a **fluoridized passive** state treatment is **welded**, hydrogen is added in a gas (back shield gas) flowing into the **welding** member. Further, a **welding** method of a **welding** member applied with the **fluoridized passive** state treatment executes the **welding** so that a thickness of a **fluoridized passive** state film is made to  $\leq 10$  nm in a prescribe range from a

butting end face of the **welding** member made of a **stainless steel** applied with the **fluoridized passive** state treatment. Further, a refluoridized **passive** state treatment method, after executing the **welding**, heats at least a **welding** part and makes a gas containing a **fluorine** gas flow inside.

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L52 ANSWER 4 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 2002-691759 [74] WPIX

DNC C2002-195549

TI Phosphation of **metal** surface, used for production of component, body part or pre-assembled element in car, aerospace, construction or furniture industry or equipment, uses solution containing zinc and manganese ions.

DC A82 G02 M14

IN BITTNER, K; KOLBERG, T; WIETZORECK, H

PA (CHEM-N) CHEMETALL GMBH

CYC 100

PI WO 2002070781 A2 20020912 (200274)\* DE 42p C23C022-18

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
NL OA PT SD SE SL SZ TR TZ UG ZM ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT  
RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM  
ZW

DE 10110833 A1 20020919 (200274) C23C022-18

ADT WO 2002070781 A2 WO 2002-EP2270 20020302; DE 10110833 A1 DE 2001-10110833  
20010306

PRAI DE 2001-10110833 20010306

IC ICM C23C022-18

ICS C23C022-12; C23C022-36; C23C022-73; C23C022-82

AB WO 2002070781 A UPAB: 20021118

NOVELTY - In applying a phosphate coating to **metal** surfaces by wetting with an aqueous acid phosphation solution, the solution contains 0.2 to less than 10 g/l zinc (Zn) ions, 0.5-25 g/l manganese (Mn) ions and 2-300 g/l phosphate ions, calculated as P2O5, and no added copper (Cu) and nickel (Ni). The prephosphated parts are then shaped, stuck or/and **welded** to other **metal** parts or/and rephosphated and optionally coated and/or lacquered.

DETAILED DESCRIPTION - In applying a phosphate coating to **metal** surfaces by wetting with an aqueous acid phosphation solution, the solution contains 0.2 to less than 10 g/l zinc (Zn) ions, 0.5-25 g/l manganese (Mn) ions and 2-300 g/l phosphate ions, calculated as P2O5, and no added copper (Cu) and nickel (Ni). The prephosphated parts are then shaped, stuck and/or **welded** to other **metal** parts and/or rephosphated and optionally provided with coating(s) containing polymer, copolymer, cross-polymer, oligomer, phosphonate, silane or/and siloxane and/or lacquer layer(s).

USE - The coated parts are used as prephosphated parts for further conversion (pre)treatment, especially before lacquering, as pretreated **metal** parts, preferably for the car industry, especially as parts that may be lacquered or coated, bonded with adhesive, shaped, assembled and/or **welded** together; and for the production of components, body parts or pre-assembled elements in the car, aerospace, construction and furniture industries, and for manufacturing equipment, especially domestic appliances, meters, controls, test equipment, construction elements, cladding and small parts (all claimed).

ADVANTAGE - Phosphation solutions usually contain 0.5-1.5 g/l nickel

(Ni). As a result, the waste liquor, phosphate sludge and grinding dust have unacceptably high contents of this heavy **metal**, which is toxic and incompatible with the environment. However, using phosphation solutions containing little or no Ni results reduces the adhesion of lacquers. It is also desirable to avoid alternatives containing other heavy **metals**, e.g. copper (Cu). The present process gives phosphate coatings that are not damaged by contact with an aqueous liquid or moisture, are of at least as good quality as usual and are very light in color.

Dwg.0/0

FS CPI  
FA AB  
MC CPI: A12-B04; G02-A02; M14-D02

L52 ANSWER 7 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 2001-590182 [66] WPIX

DNC C2001-175142

TI Aqueous acidic solution for forming rare earth element-containing conversion coating on **metallic** surfaces comprises rare earth elements containing species, oxidants, and accelerators.

DC M14

IN HAMMON, K J; HARDIN, S G; HUGHES, A E; WITTEL, K W; NELSON, K J H

PA (CSIR) COMMONWEALTH SCI & IND RES ORG; (HARD-I) HARDIN S G; (HUGH-I)

HUGHES A E; (NELS-I) NELSON K J H; (WITT-I) WITTEL K W

CYC 96

PI WO 2001071058 A1 20010927 (200166)\* EN 43p C23C022-48

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ

NL OA PT SD SE SL SZ TR TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK

DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD

SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2001042091 A 20011003 (200210) C23C022-48

NO 2001005643 A 20020121 (200224) C23C022-48

EP 1198614 A1 20020424 (200235) EN C23C022-48

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT

RO SE SI TR

US 2002084002 A1 20020704 (200247) B05D003-00

ADT WO 2001071058 A1 WO 2001-AU311 20010320; AU 2001042091 A AU 2001-42091

20010320; NO 2001005643 A WO 2001-AU311 20010320, NO 2001-5643 20011119;

EP 1198614 A1 EP 2001-914820 20010320, WO 2001-AU311 20010320; US

2002084002 A1 Cont of WO 2001-AU311 20010320, US 2001-988578 20011120

FDT AU 2001042091 A Based on WO 200171058; EP 1198614 A1 Based on WO 200171058

PRAI AU 2000-6332 20000320

IC ICM B05D003-00; C23C022-48

ICS C23C022-00; C23C022-53; C23C022-56; C23C022-57

AB WO 200171058 A UPAB: 20011113

NOVELTY - An aqueous chromate-free, acidic solution for forming a rare earth element-containing conversion coating on a **metal** surface includes rare earth element(s) containing species, an oxidant and accelerator(s) comprising a **metal** from groups VA and VIA of the periodic table.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(A) a surface treated part of a **metallic** material having a conversion coating resulting from treatment with an aqueous acidic solution;

(B) a liquid acidic aqueous concentrate for the make-up of an aqueous acidic solution comprising at least 100, preferably 125 g/l of the total rare earth element containing species, and acid(s), such as, mineral

acids, carboxylic acids, sulfonic acids, or phosphonic acids, and containing no chromate but minimal phosphate and **fluoride**; and

(C) a process for forming a conversion coating on the **metallic** surface.

USE - The method is used for forming rare earth element containing conversion coating on a **metallic** surface, e.g., coils, useful in cold forming, gluing, **welding** or other forms of joining (claimed).

ADVANTAGE - The addition of one or more additives, having particular compositions, to the coating solution can assist in accelerating the coating process and/or improving adhesion of the conversion coating to the **metal** surface. Such coating solutions have the advantages of forming conversion coatings in a short period of time as required in industrial applications, and having a low rate of decomposition of peroxidic composition solution.

Dwg.0/0

FS CPI  
FA AB  
MC CPI: M14-D

L52 ANSWER 8 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 2000-423460 [36] WPIX

DNC C2000-128279

TI **Stainless steel** has **passive fluoride** film formed on its surface.

DC M13

IN IZUMI, H; KIKUYAMA, H; KUJIME, T; MIYASHITA, M; OHMI, T

PA (STEL-N) STELLA CHEMIFA KK

CYC 23

PI WO 2000034546 A1 20000615 (200036)\* JA 22p C23C008-08

RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: JP KR SG US

EP 1146135 A1 20011017 (200169) EN C23C008-08

R: DE FR GB IT NL

JP 2000586977 X 20020326 (200223) C23C008-08

KR 2001107997 A 20011207 (200236) C23C008-06

TW 476805 A 20020221 (200305) C23C016-30

ADT WO 2000034546 A1 WO 1998-JP5491 19981204; EP 1146135 A1 EP 1998-957181

19981204, WO 1998-JP5491 19981204; JP 2000586977 X WO 1998-JP5491

19981204, JP 2000-586977 19981204; KR 2001107997 A WO 1998-JP5491

19981204, KR 2001-706850 20010601; TW 476805 A TW 1998-121101 19981217

FDT EP 1146135 A1 Based on WO 200034546; JP 2000586977 X Based on WO 200034546

PRAI WO 1998-JP5491 19981204

IC ICM C23C008-06; C23C008-08; C23C016-30

AB WO 200034546 A UPAB: 20000801

NOVELTY - A **passive fluoride** film with a thickness of 190 Angstrom or less and mainly comprising **metal fluoride** is formed on at least part of the surface of the **stainless steel**.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is given for equipment manufactured from the **steel**.

USE - **Passivated stainless steel** production.

ADVANTAGE - The **passive** film can be readily applied, does not generate particles even when worked by **welding**, and does not generate leakage even when formed on a joint seal surface or a valve seat surface.

Dwg.2/7

FS CPI  
FA AB; GI

MC CPI: M13-D03B

L52 ANSWER 9 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 1999-306687 [26] WPIX

DNN N1999-229920 DNC C1999-090407

TI **Welding** method for **fluorine** gas supply piping - involves increasing hydrogen content in **welding** gas during **welding**.

DC M23 P55

IN NAKAMURA, O; NITTA, T; OHMI, T; SHIRAI, Y

PA (OHMI-I) OHMI T; (ULTR-N) ULTRACLEAN TECHNOLOGY KAIHATSU KENKYUSHO; (ULTR-N) ULTRACLEAN TECHNOLOGY RES KK; (ULTR-N) ULTRACLEAN TECHNOLOGY RES INST

CYC 2

PI JP 11104836 A 19990420 (199926)\* 18p B23K009-16

US 6220500 B1 20010424 (200125) B23K001-20

US 2001023888 A1 20010927 (200159) B23K028-00

ADT JP 11104836 A JP 1997-322361 19971107; US 6220500 B1 US 1998-130583 19980807; US 2001023888 A1 Div ex US 1998-130583 19980807, US 2000-748883 20001227

FDT US 2001023888 A1 Div ex US 6220500

PRAI JP 1997-227121 19970808

IC ICM B23K001-20; B23K009-16; B23K028-00

ICS B23K001-19; B23K005-213; B23K009-23; B23K020-24; B23K031-02; B23K035-24; B23K035-36; C21D001-09; C21D009-08; C23C008-10

AB JP 11104836 A UPAB: 20010508

NOVELTY - A piping containing **stainless steel**, is **welded** by increasing hydrogen amount in **welding** gas. Then **welding** is carried out.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for **welding** component processing method.

USE - For flowing gas supply pipe used in semiconductor production line.

ADVANTAGE - The generation of particle or refuse is prevented, when re-**fluoride passive** state process is performed after **welding**.

DESCRIPTION OF DRAWING - The figure shows the explanatory view of piping under **welding** condition.

Dwg.0/6

FS CPI GMPI

FA AB

MC CPI: M23-D01A4

L52 ANSWER 11 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 1985-217901 [36] WPIX

DNC C1985-094940

TI **Passivating metal** surface - by coating with conductive layer contg. cpd. of hetero-poly acid, iso-poly acid, **fluoro**-complex cpd. and/or acetyl acetate.

DC A32 M14

IN BUTTNER, U; JOSTAN, J L

PA (LICN) LICENTIA PATENT-VERW GMBH

CYC 1

PI DE 3407095 A 19850829 (198536)\* 9p

ADT DE 3407095 A DE 1984-3407095 19840228

PRAI DE 1984-3407095 19840228; DE 1984-3443928 19841201

IC C23C026-00; C23F011-18

AB DE 3407095 A UPAB: 19930925

The layer is produced in a bath contg. at least one cpd. of a heteropolyacid and/or of an isopolyacid and/or of a **fluoro**

-complex cpd. with an element of one of the side-gps. IVA or VA or VIA of the Periodic System, with the exception of Cr, and/or an acetyl acetate.

Pref. during the deposition of the layer, the bath is kept above room temp., esp. at 20-80 deg. C. The bath can contain at least one additive which improves the electrical, mechanical and/or chemical properties of the applied layer. The additive can be an oxidising agent, e.g. Na perborate, and/or a plasticiser and/or sealant, e.g. a polyglycol and/or a **metal**-specific corrosion-inhibitor, e.g. benzotriazole, and/or a wetting agent, e.g. a long-chained aliphatic, sulphonic agent. Pref. the deposited layer is strengthened by tempering at 100-140 deg. C.

ADVANTAGE - Chromating is replaced by a non-polluting process. The corrosion-inhibiting layer is electrically conductive, whereby electrostatic charging of the **passivated** surface is prevented. The **passivated** surfaces can be spot-welded directly.

O/O

FS CPI

FA AB

MC CPI: A12-W12D; M13-H; M14-K

L52 ANSWER 12 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 1985-001647 [01] WPIX

DNN N1985-001046 DNC C1985-000578

TI Dry **passivation** of magnesium particles - by treatment with corrosion inhibitor powder.

DC E31 E32 M14 P53

IN CASTERA, J P; DESBREST, J; MAURET, P; MOYEN, J

PA (PECH) PECHINEY ELECTROMETALLURGIE; (SOFR-N) SOC FRAN EL SOFREM

CYC 11

PI EP 129491 A 19841227 (198501)\* FR 8p

R: AT BE CH DE IT LI LU NL SE

FR 2549086 A 19850118 (198509)

EP 129491 B 19870114 (198702) FR

R: AT BE CH DE GB IT LI LU NL SE

DE 3461992 G 19870219 (198708)

ADT EP 129491 A EP 1984-420104 19840619; FR 2549086 A FR 1983-10610 19830621

PRAI FR 1983-10610 19830621

REP DE 1294139; FR 1292322; FR 2352895; GB 562469; GB 700694

IC B22F001-00; C22B026-22; C23C024-00; C23F011-18

AB EP 129491 A UPAB: 19930925

Dry **passivation** of magnesium particles is effected by intimate contact of the magnesium with a finely divided corrosion inhibitor in three successive steps: (i) in a dry atmos., (ii) in a water vapour satd. atmos. in the absence of liq. water, and (iii) in a dry atmos. The corrosion inhibitor is a mineral cpd., in which the cation is selected from Zn, Cd, Ba, Pb and Sn, and the anion is selected from (bi)chromate, permanganate, (per)chlorate, vanadate, phosphate, **fluorophosphate**, **fluoride** and borate.

USE - The process is useful for protecting Mg particles during storage, e.g. as a paste in a sodium silicate binder used for coating **welding** electrodes.

O/O

FS CPI GMPI

FA AB

MC CPI: E31-C; E31-D03; E31-K05; E31-K07; E31-Q; E35; M14-F02

L52 ANSWER 13 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 1983-703342 [27] WPIX

DNC C1983-063435

TI **Steel** plate with high **welding** and anti-corrosion properties - for seam-welding, has inner plating layer of



nickel-tin **alloy** and **passive** hydrated chromium outer plating.

DC M11

PA (KAWI) KAWASAKI STEEL CORP

CYC 1

PI JP 58091192 A 19830531 (198327)\* 4p

PRAI JP 1981-190244 19811127

IC C25D005-26

AB JP 58091192 A UPAB: 19930925

A surface-treated **steel** plate (I) for seam-welding has on a **steel** plate an inner plating layer (II) of Ni-Sn **alloy** (III) and an outer layer of **passive** hydrated chromium coating (IV). The thickness of (II) is in the range of 0.01-0.2 microns. (III) has such an **alloy** compsn. that the wt. ratio of Sn/(Sn+Ni) is 0.5-0.8. (IV) is deposited in an amt. of 0.1-20 mg/m<sup>2</sup>.

(II) may be obtd. by electroplating in a bath such as chloride-fluoride, sulphate-fluoride, silicofluoride, pyrophosphate and chloride bath at 50-70 deg.C and 0.1-50 A/dm<sup>2</sup>. A chromate bath for forming (IV) may have a concn. of chromic acid of not more than 50 g/l.

(I) is used for a material of tins to be seam **welded**. (I) has excellent properties such as **welding** property, anti-corrosion and coatability. A wide current range can be used for **welding**, e.g. 1200-2500 A, while that of (25) tin plate is 2500-2800 A. Anti-corrosive property is against the contents of a tin after coating. The coating has a prim. adhesion of a coating membrane and a sec. adhesion after a retort treatment, for example.

FS CPI

FA AB

MC CPI: M11-A02; M14-D03

L52 ANSWER 14 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 1982-95968E [45] WPIX

TI Preventing corrosion **welded** parts of **stainless steel** - by removing oxide scale, smoothing and opt. coating with **passivation** film.

DC M23

PA (SUMQ) SUMITOMO METAL IND LTD

CYC 1

PI JP 57158386 A 19820930 (198245)\* 6p

PRAI JP 1981-45308 19810326

IC C23F015-00

AB JP 57158386 A UPAB: 19930915

Oxide scale formed on the **welded** part of a **stainless steel** is removed from the **welded** part (I). (I) is then treated so as to have a ruggedness of 40 microns or less. (I) may then be coated with a **passivation** film. The oxide scale is pref. removed by contacting the **welded** part with aq. soln. containing both **fluoric** and nitric acids.

Corrosion resistance is improved by removing oxide film which would cause pitting corrosion or stress cracking under a corrosive atmos. such as sea water.

FS CPI

FA AB

MC CPI: M12-A; M14-K

L52 ANSWER 15 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN

AN 1982-85235E [40] WPIX

TI Preparing magnesium **alloy** surfaces for contact **welding** operations - includes etching in di chromate and nitric acid soln. and

**passivating** in and ammonium bi **fluoride** soln..  
DC M14  
IN STOLYAROVA, L N; TIMONOVA, M A  
PA (RYAZ-I) RYAZANTSEV V I  
CYC 1  
PI SU 885354 B 19811130 (198240)\* 3p  
PRAI SU 1979-2835470 19791030  
IC C23F007-26; C25F001-00  
AB SU 885354 B UPAB: 19930915  
Mg **alloy** surfaces are prepared for contact spot and seam **welding** processes, esp. in aerospace technology, by: degreasing, etching; removing oxide film using a soln. of (in g./l.): k dichromate 30-60, HNO<sub>3</sub> 60-90 and (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub> 0.2-1.5 at 40-80 deg. C. for 3-5 mins; and **passivating** in a soln. contg.: Cr<sub>2</sub>O<sub>3</sub> 20-30 and NH<sub>4</sub>HF 0.3-1.8 at 50-70 deg. C. for 15-30 mins. A high quality **welding** surface is obt'd. having a low contact resistance.  
FS CPI  
FA AB  
MC CPI: M12-B01; M14-A; M14-D

L52 ANSWER 18 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
AN 1976-37667X [20] WPIX  
TI Coating of electrodes for **welding steels** - includes master **alloy** of silicon, manganese, aluminium, zirconium and titanium.  
DC M23 P55  
PA (ZHDA-R) ZHDANOVSK METAL INS  
CYC 1  
PI SU 480516 A 19751110 (197620)\*  
PRAI SU 1973-1961180 19731001  
IC B23K035-36  
AB SU 480516 A UPAB: 19930901  
The coating is for electrodes used in **welding** high-strength carbon, low-**alloy**, and **alloy steels**, and reduces the tendency to **weld metal** porosity. Compsn. is (wt. %): marble 36-38, **fluorspar** 20-24, titanium dioxide 8-10, Fe powder 12-18, Si-Mn-Al-Zr-Ti master **alloy** 5-11, zircon concentrate 8-10, Al-Mg **alloy** 1-2, soda ash 0.8-1.0. Compsn. of master **alloy** is (wt. %): Mn 40, Si 18, Ti 20, Al 12, Zr 10. Replacement of individual ferroalloys by the master **alloy** ensures combination with atmos. nitrogen to form Al, Zr and Ti nitrides, reducing the tendency to porosity as well as deoxidising the molten bath. The coating is chemically **passive**: there are no pyrophoric properties, and it can be stored in powder form under prodn. conditions.  
FS CPI GMPI  
FA AB  
MC CPI: M23-F

**passivating** in and ammonium bi **fluoride** soln..  
DC M14  
IN STOLYAROVA, L N; TIMONOVA, M A  
PA (RYAZ-I) RYAZANTSEV V I  
CYC 1  
PI SU 885354 B 19811130 (198240)\* 3p  
PRAI SU 1979-2835470 19791030  
IC C23F007-26; C25F001-00  
AB SU 885354 B UPAB: 19930915  
Mg **alloy** surfaces are prepared for contact spot and seam **welding** processes, esp. in aerospace technology, by: degreasing, etching; removing oxide film using a soln. of (in g./l.): k dichromate 30-60, HNO3 60-90 and (NH4)2SO4 0.2-1.5 at 40-80 deg. C. for 3-5 mins; and **passivating** in a soln. contg.: Cr2O3 20-30 and NH4HF 0.3-1.8 at 50-70 deg. C. for 15-30 mins. A high quality **welding** surface is obtd. having a low contact resistance.  
FS CPI  
FA AB  
MC CPI: M12-B01; M14-A; M14-D

L52 ANSWER 18 OF 19 WPIX COPYRIGHT 2003 THOMSON DERWENT on STN  
AN 1976-37667X [20] WPIX  
TI Coating of electrodes for **welding steels** - includes master **alloy** of silicon, manganese, aluminium, zirconium and titanium.  
DC M23 P55  
PA (ZHDA-R) ZHDANOVSK METAL INS  
CYC 1  
PI SU 480516 A 19751110 (197620)\*  
PRAI SU 1973-1961180 19731001  
IC B23K035-36  
AB SU 480516 A UPAB: 19930901  
The coating is for electrodes used in **welding** high-strength carbon, low-**alloy**, and **alloy steels**, and reduces the tendency to **weld metal** porosity. Compsn. is (wt. %): marble 36-38, **fluorspar** 20-24, titanium dioxide 8-10, Fe powder 12-18, Si-Mn-Al-Zr-Ti master **alloy** 5-11, zircon concentrate 8-10, Al-Mg **alloy** 1-2, soda ash 0.8-1.0. Compsn. of master **alloy** is (wt. %): Mn 40, Si 18, Ti 20, Al 12, Zr 10. Replacement of individual ferroalloys by the master **alloy** ensures combination with atmos. nitrogen to form Al, Zr and Ti nitrides, reducing the tendency to porosity as well as deoxidising the molten bath. The coating is chemically **passive**: there are no pyrophoric properties, and it can be stored in powder form under prodn. conditions.  
FS CPI GMPI  
FA AB  
MC CPI: M23-F

=> d his nofile L53-

(FILE 'JAPIO, WPIX' ENTERED AT 14:00:19 ON 12 AUG 2003)

FILE 'HCA' ENTERED AT 14:04:04 ON 12 AUG 2003  
D L22 1 CBIB ABS HITIND HITRN  
D L19 1-3 CBIB ABS HITIND HITRN  
D L21 1-7 TI  
D L21 1-7 CBIB ABS HITIND HITRN

FILE 'WELDASEARCH' ENTERED AT 14:05:15 ON 12 AUG 2003

L53           D L36 1-16 TI  
              D L36 1-7, 9-10,12-16 ALL  
              7 SEA ABB=ON PLU=ON L30 NOT L36  
              D L30 1-7 TI  
              D L30 1-2, 5-7 ALL

FILE 'METADEX' ENTERED AT 14:09:12 ON 12 AUG 2003

              D L46 1-3 TI  
              D L46 1-3 ALL

FILE 'JAPIO, WPIX' ENTERED AT 14:09:50 ON 12 AUG 2003

              D L52 1-19 TI  
              D L52 1-2,4,7-9,11-15,18 ALL  
              D COST  
L54           14596 SEA ABB=ON PLU=ON PASSIV? AND STEEL? OR (FE OR IRON#) (N) (ALLO  
                  Y?)  
L55           1860 SEA ABB=ON PLU=ON PASSIV? AND (STEEL? OR (FE OR IRON#) (N) (ALL  
                  OY?))  
L56           133451 SEA ABB=ON PLU=ON FLUORI?  
L57           83 SEA ABB=ON PLU=ON L55 AND L56  
L58           0 SEA ABB=ON PLU=ON L57 AND L17

FILE 'HCA' ENTERED AT 14:30:38 ON 12 AUG 2003

L59           11325 SEA ABB=ON PLU=ON PASSIV? AND (STEEL? OR (FE OR IRON#) (A) (ALL  
                  OY?))  
L60           223 SEA ABB=ON PLU=ON L59 AND L11  
L61           106 SEA ABB=ON PLU=ON L60 AND L17  
L62           36 SEA ABB=ON PLU=ON L61 AND PASSIV?/TI  
L63           27 SEA ABB=ON PLU=ON L62 AND STEEL?/TI  
L64           18 SEA ABB=ON PLU=ON L63 AND 1907-1998/PRY,PY  
L65           16 SEA ABB=ON PLU=ON L64 NOT (L22 OR L19 OR L21)

=> d L65 1-16 cbib abs hitind hitrn

L65 ANSWER 1 OF 16 HCA COPYRIGHT 2003 ACS on STN

137:330419 Method of **passivation** of galvanized **steel**  
surfaces. Ferrari, Vincenzo; Falcioni, Fabrizio; Ferri, Bruno (Centro  
Sviluppo Materiali S.p.A., Italy). Ital. IT 1302945 B1 20001010, 44 pp.  
(Italian). CODEN: ITXXBY. APPLICATION: IT 1998-RM798 19981224.

AB In the process of **passivation** of galvanized **steel**  
surfaces which consists of degreasing, pickling, rinsing, and  
**passivation**, the latter stage comprises a procedure of immersing  
the surface to be **passivated** in a **passivating** soln.  
contg. salts in which the cationic part consists mostly of at least two  
ions selected from the group of Ti, Co, Na, and K and the anionic part  
consists mostly of at least two ions selected from the group of  
**fluoride**, nitrate fluorosilicate, and sulfate.

IC ICM C23C

CC 72-6 (Electrochemistry)

Section cross-reference(s): 55

ST galvanized **steel** surface **passivation**

IT Coating materials

(conversion; **passivation** of coated galvanized **steel**  
surfaces)

IT **Passivation**

(electrochem.; method of **passivation** of galvanized  
**steel** surfaces)

IT Galvanized **steel**

RL: PEP (Physical, engineering or chemical process); PYP (Physical  
process); TEM (Technical or engineered material use); PROC (Process); USES

- (Uses)  
(electrogalvanized; method of **passivation** of galvanized **steel** surfaces)
- IT Current density  
(in electrochem. method of **passivation** of galvanized **steel** surfaces)
- IT pH  
(in method of **passivation** of galvanized **steel** surfaces)
- IT **Passivation**  
(method of **passivation** of galvanized **steel** surfaces)
- IT Galvanized **steel**  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(method of **passivation** of galvanized **steel** surfaces)
- IT Paints  
(**passivation** of prepainted galvanized **steel** surfaces)
- IT Polyesters, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(primer; **passivation** of prepainted galvanized **steel** surfaces)
- IT Corrosion  
(resistance; of **passivated** galvanized **steel** surfaces)
- IT 7664-93-9, Sulfuric acid, uses 7784-31-8, Sulfuric acid, aluminum salt (3:2), octadecahydrate 7789-12-0, Chromic acid (H<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>), disodium salt, dihydrate 10026-24-1 16919-27-0  
RL: NUU (Other use, unclassified); USES (Uses)  
(in **passivation** of galvanized **steel** surfaces)
- IT 7631-99-4, Sodium nitrate, uses 10124-43-3, Cobalt sulfate 16871-90-2, Potassium hexafluorosilicate 16961-83-4  
RL: NUU (Other use, unclassified); USES (Uses)  
(**passivating** soln. contg.; method of **passivation** of galvanized **steel** surfaces)
- L65 ANSWER 2 OF 16 HCA COPYRIGHT 2003 ACS on STN
- 133:108080 Method for **passivation** of stainless **steel** pipe lines for supply of hydrogen **fluoride** gas in manufacture of semiconductors. Koike, Kunihiro; Inoue, Goichi (Iwatani + Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000192222 A2 20000711, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-368763 19981225.
- AB The method comprises **passivation** of stainless **steel** pipes with ozone to form a **passive** oxide film to prevent the corrosion of the pipe by HF gas.
- IC ICM C23C008-14
- CC 55-10 (Ferrous Metals and Alloys)  
Section cross-reference(s): 76
- ST stainless **steel** pipe **passivation** semiconductor manuf
- IT **Passivation**  
Pipes and Tubes  
Semiconductor materials  
(**passivation** of stainless **steel** pipe lines with ozone for supply of hydrofluoride gas in manuf. of semiconductors)
- IT 12597-68-1, Stainless **steel**, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**passivation** of stainless **steel** pipe lines with

- ozone for supply of hydrofluoride gas in manuf. of semiconductors)
- IT 7664-39-3, Hydrogen **fluoride**, uses 10028-15-6, Ozone, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**passivation** of stainless **steel** pipe lines with  
ozone for supply of hydrofluoride gas in manuf. of semiconductors)
- L65 ANSWER 3 OF 16 HCA COPYRIGHT 2003 ACS on STN
- 130:341107 Study on **passive** film structure and corrosion of  
stainless **steel**. Hattori, Haruo (Research Division, Kobelco  
Research Institute Inc., Japan). Fushoku Boshoku Bunon Iinkai Kenkyu  
Shukai Shiryo, 48, 54-64 (Japanese) 1998. CODEN: FBBSDO.  
Publisher: Nippon Zairyo Gakkai Fushoku Boshoku Bunon Iinkai.
- AB Microcorrosion under **passivation** of stainless **steel**  
was studied on the samples of **steel** employed in nuclear power  
plants and for semiconductor manuf. Preoxidn. of a stainless  
**steel** SUS304L (employed in at. power plants) surface at  
300-500.degree. decreased microcorrosion in high-temp. pure water and  
suppressed elution of Fe, Ni, Cr, and Co. The suppression of Co elution  
was esp. effective. Optimum treatment temp. region existed regardless of  
the oxidn. atm. When the oxide film was too thick, it consisted only of  
Fe oxides and the resistance to elution was again degraded. Tests were  
also conducted on stainless **steel** SUS316L plate and pipe  
employed in semiconductor device fabrication. The effect of thermal  
oxidn. conditions on microcorrosion behavior and corrosion was studied.  
No corrosion in NF3, HCl, and Cl2 was obsd. in electrolytically polished  
and thermally oxidized SUS316L **steel**. When thermal oxidn. under  
appropriate partial O concn. was conducted after polishing with abrasive  
grains having a large av. diam., a thick and dense oxide film consisting  
mainly of Cr could be obtained at a relatively low temp.
- CC 55-10 (Ferrous Metals and Alloys)  
Section cross-reference(s): 71, 76
- ST stainless **steel** corrosion **passive** film nuclear power  
plant; semiconductor device fabrication stainless **steel**  
**passive** film corrosion
- IT Nuclear power plants  
**Passivation**  
Semiconductor device fabrication  
(study on **passive** film structure and corrosion of stainless  
**steel** used for)
- IT **Passive** films  
Polishing  
(study on **passive** film structure and corrosion of stainless  
**steel** used for nuclear power plants and semiconductor device  
fabrication)
- IT Oxidation  
(thermal; study on **passive** film structure and corrosion of  
stainless **steel** used for)
- IT 7647-01-0, Hydrogen chloride, uses 7782-50-5, Chlorine, uses  
186958-04-3, Nitrogen **fluoride**  
RL: NUU (Other use, unclassified); USES (Uses)  
(corrosion in; study on **passive** film structure and corrosion  
of stainless **steel** used for nuclear power plants and  
semiconductor device fabrication)
- IT 11134-23-9, Sus316L 12611-86-8, Sus304L  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
(study on **passive** film structure and corrosion of stainless  
**steel** used for)
- IT 7439-89-6, Iron, miscellaneous 7440-02-0, Nickel, miscellaneous  
7440-47-3, Chromium, miscellaneous 7440-48-4, Cobalt, miscellaneous

- RL: MSC (Miscellaneous)  
(suppression of elution of; study on **passive** film structure and corrosion of stainless **steel** used for)
- IT 7782-44-7, Oxygen, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(thermal oxidn. in; study on **passive** film structure and corrosion of stainless **steel** used for nuclear power plants and semiconductor device fabrication)
- L65 ANSWER 4 OF 16 HCA COPYRIGHT 2003 ACS on STN  
129:59872 Chemical survey of **passivity** of stainless **steels** from a viewpoint of complex formation. Tachibana, Koji; Furukawa, Akira; Miyahara, Satoshi (Department of Chemistry, Faculty of Science, Science University of Tokyo, Tokyo, 162, Japan). Proceedings - Electrochemical Society, 97-26(Passivity and Its Breakdown), 285-297 (English) 1998. CODEN: PESODO. ISSN: 0161-6374. Publisher: Electrochemical Society.
- AB Focusing on elucidation of the mechanism of the initial stage in pitting corrosion occurrence, in situ diagnosis of **passive** state of stainless **steels** was attempted by using **fluoride** as a ligand and chloride as an aggressive anion. The addn. of **fluoride** to acidic sodium sulfate soln., even 1 or 10mM in concn., leads to general corrosion corresponding to constituent elements for 304 and 316 stainless **steels** not to be **passivated**. When being immersed at Ecorr followed by **passivation** in the **fluoride** mixed soln., the preferential dissoln. of iron component occurred markedly. And only in this case, **fluoride** accumulation was confirmed by XPS, while chloride was not detected. However, for stainless **steels** **passivated** in **fluoride** free soln. followed by addn. of **fluoride**, the iron component from 304 and molybdenum from 316 ss, in addn. of iron, dissolved preferentially. The dissoln. of these components occur only at the moment of **fluoride** addn. In this case, neither **fluoride** nor chloride accumulation could be detected and just molybdenum depletion from outermost **passive** layers was confirmed by AES. This fact corresponds to the dissoln. of molybdenum by **fluoride** addn. in course of the **passivation**.
- CC 72-6 (Electrochemistry)  
Section cross-reference(s): 55, 78
- ST **passivity** stainless **steel** complexation  
**fluoride**; anodic polarization stainless **steel**  
**fluoride** chloride; pitting corrosion stainless **steel**  
**fluoride** chloride; potential corrosion stainless **steel**  
**fluoride**; iron molybdenum preferential dissoln stainless **steel**; **fluoride** complexation stainless **steel**  
pitting corrosion
- IT **Passivation**  
(electrochem.; of stainless **steel** in **fluoride** and **fluoride** and chloride solns.: **passivity** of stainless **steels** from viewpoint of complex formation)
- IT Complexation  
(of **fluoride** in pitting corrosion of stainless **steel**)
- IT Anodic polarization  
(of stainless **steel** in **fluoride** and **fluoride** and chloride solns.: **passivity** of stainless **steels** from viewpoint of complex formation)
- IT **Passivity**  
(of stainless **steels** from viewpoint of complex formation)
- IT Corrosion

- (pitting; of stainless **steels** in chloride and **fluoride** soln.)
- IT 7757-82-6, Sodium sulfate, properties  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
(anodic polarization and corrosion of stainless **steels** in **fluoride**-contg.)
- IT 7647-14-5, Sodium chloride, properties 7681-49-4, Sodium **fluoride**, properties 11107-04-3, Aisi 316 11109-50-5, Aisi 304 16887-00-6, Chloride, properties **16984-48-8, Fluoride**, properties  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
(anodic polarization and **passivation** in **fluoride** and **fluoride** and chloride solns.: **passivity** of stainless **steels** from viewpoint of complex formation)
- IT 7439-89-6, Iron, properties 7439-98-7, Molybdenum, properties  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(preferential dissoln. in stainless **steel** electrochem. **passivation** in **fluoride** soln.)
- IT **16984-48-8, Fluoride**, properties  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);  
PROC (Process)  
(anodic polarization and **passivation** in **fluoride** and **fluoride** and chloride solns.: **passivity** of stainless **steels** from viewpoint of complex formation)
- L65 ANSWER 5 OF 16 HCA COPYRIGHT 2003 ACS on STN
- 129:30652 **Passivation** of stainless **steel** gas cylinders for storage of chlorine standards in nitrogen. Baldea, Aurel; Axente, Damian-Alexandru; Abrudean, Mihail-Ioan (Baldea, Aurel, Rom.; Axente, Damian-Alexandru; Abrudean, Mihail-Ioan). Rom. RO 106425 B1 **19930430**, 3 pp. (Romanian). CODEN: RUXXA3. APPLICATION: RO 1990-146615 19901221.
- AB Stainless **steel** cylinders for storage of Cl<sub>2</sub> stds. in N<sub>2</sub> are treated with F<sub>2</sub> for 24 h at a rate of 10-15 L/h, room temp., and atm. pressure to form a **fluoride** film on the inner surfaces. The film contg. Fe, Cr, and Ni **fluorides** does not permit a Cl<sub>2</sub> access to the gas cylinder walls.
- IC ICM C23D022-34
- CC **55-6** (Ferrous Metals and Alloys)
- ST stainless **steel** cylinder **passivation** chlorine storage
- IT Scale (deposits)  
(**fluoride**; for **passivation** of stainless **steel** gas cylinders for storage of chlorine stds. in nitrogen)
- IT Cylinders  
(gas; **passivation** of stainless **steel** gas cylinders for storage of chlorine stds. in nitrogen)
- IT **Passivation**  
(of stainless **steel** gas cylinders for storage of chlorine stds. in nitrogen by treatment with **fluorine**)
- IT **7782-41-4, Fluorine**, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**passivation** of stainless **steel** gas cylinders for storage of chlorine stds. by treatment with)
- IT 7727-37-9, Nitrogen, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**passivation** of stainless **steel** gas cylinders for storage of chlorine stds. in)



- IT 7782-50-5, Chlorine, processes 12597-68-1, Stainless **steel**, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**passivation** of stainless **steel** gas cylinders for storage of chlorine stds. in nitrogen)
- IT 7782-41-4, **Fluorine**, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**passivation** of stainless **steel** gas cylinders for storage of chlorine stds. by treatment with)
- L65 ANSWER 6 OF 16 HCA COPYRIGHT 2003 ACS on STN
- 123:230798 **Passivation** films for poly(vinyl chloride)-coated **steel** panels. Tsukatani, Toshihiko; Arai, Toshishige (Shinetsu Chem Ind Co, Japan). Jpn. Kokai Tokkyo Koho JP 07076676 A2 19950320 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-247514 19930908.
- AB The title films with good resistance to chems., folding fatigue and weather have a layer of vinylidene **fluoride** polymer and a layer from 100 parts org. amine-grafted (meth)acrylate ester copolymers and 6-20 parts polyethylene glycol diglycidyl ethers. Thus, coating a mixt. of 100 parts NK 350 (0.6% ethyleneimine-grafted Bu methacrylate-Me methacrylate copolymer; 35% solid) and 6 parts Denacol EX-832 on a film of Solef 1010 gave a **passivation** film with good adhesion to PVC-coated **steel** surface.
- IC ICM C09J007-02  
ICS C09J007-02; B32B015-08; C09J163-00
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 37, 55
- ST **passivation** film PVC coat **steel**; folding fatigue resistance **passivation** film; protective film folding resistance; polyvinylidene **fluoride** blend protection film; PEG glycidyl ether protection film
- IT Epoxy resins, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(crosslinking agents; **passivation** films for poly(vinyl chloride)-coated **steel** panels)
- IT Fluoropolymers  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(**passivation** films for poly(vinyl chloride)-coated **steel** panels)
- IT Plastics, film  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**passivation** films for poly(vinyl chloride)-coated **steel** panels)
- IT Epoxy resins, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(acrylic, adhesives; **passivation** films for poly(vinyl chloride)-coated **steel** panels)
- IT Adhesives  
(films, **passivation** films for poly(vinyl chloride)-coated **steel** panels)
- IT 168900-92-3P 168900-93-4P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(adhesives; **passivation** films for poly(vinyl chloride)-coated **steel** panels)
- IT 24937-79-9, Solef 1010  
RL: POF (Polymer in formulation); TEM (Technical or engineered material

- use); USES (Uses)  
(films, surface-protecting; **passivation** films for poly(vinyl chloride)-coated **steel** panels)
- IT 12597-69-2, **Steel**, miscellaneous  
RL: MSC (Miscellaneous)  
(**passivation** films for poly(vinyl chloride)-coated **steel** panels)
- IT 9002-86-2, Poly(vinyl chloride)  
RL: TEM (Technical or engineered material use); USES (Uses)  
(**passivation** films for poly(vinyl chloride)-coated **steel** panels)
- L65 ANSWER 7 OF 16 HCA COPYRIGHT 2003 ACS on STN  
123:89611 Pretreatment of chromium **steels** prior to coating by **passivation** in nitric acid bath. Vietze, Hans-Joachim (Bosch, Robert, G.m.b.H., Germany). Ger. Offen. DE 4343896 A1 **19950629**, 4 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1993-4343896 19931222.
- AB Cr **steels** are pretreated by **passivation** for 1-10 min in a warm HNO<sub>3</sub> bath at 50-80.degree.. The bath concn. is 45-65% HNO<sub>3</sub>, and the bath optionally contains 0.5-2 g **fluoride**/L HNO<sub>3</sub>. The treated surface is suitable for subsequent coating, typically with MoS<sub>2</sub>.
- IC ICM C23C022-06  
ICA F02M061-00  
CC **55-6** (Ferrous Metals and Alloys)  
ST chromium **steel** pretreatment coating; **passivation** chromium **steel** nitric acid  
IT **Passivation**  
(of chromium **steel** with nitric acid prior to coating)  
IT Coating process  
(**passivation** of chromium **steel** with nitric acid prior to)
- IT 7697-37-2, Nitric acid, processes  
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(**passivation** of chromium **steel** with nitric acid prior to coating)
- IT 11100-60-0, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(**passivation** of chromium **steel** with nitric acid prior to coating)
- L65 ANSWER 8 OF 16 HCA COPYRIGHT 2003 ACS on STN  
121:305562 Process for pickling and **passivating** stainless **steel** using a bath containing ferric ions, sulfuric acid, hydrogen **fluoride** and hydrogen peroxide instead of the conventional nitric acid-hydrogen **fluoride** bath.. Bianchi, Marco (ITB, S.r.l., Italy). U.S. US 5354383 A **19941011**, 5 pp. Cont.-in-part of U.S. Ser. No. 770,362, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1993-2942 19930111. PRIORITY: IT 1991-MI879 19910329; US 1991-770632 19911003.
- AB The process consists of using a bath contg. H<sub>2</sub>SO<sub>4</sub> .gtoreq.150, Fe<sup>3+</sup> .gtoreq.15, HF .gtoreq.40, H<sub>2</sub>O<sub>2</sub> 2-5, and a nonionic surfactant type acid 1 g/l at 30-70.degree. with continuous air flow .gtoreq.3m<sup>3</sup>/h. The bath redox potential of .gtoreq.350 mV is maintained by adding H<sub>2</sub>O<sub>2</sub> 0.3-1 g/h and pH is held at 0-0.5. The ferric ions are supplied by Fe<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>. This process has significance in 2 ways because (1) H<sub>2</sub>O<sub>2</sub> consumption is low and (2) no corrosive and polluting N oxide vapors are produced that conventional HNO<sub>3</sub> processes emit.
- IC ICM C23G001-02  
NCL 134003000

- CC 55-6 (Ferrous Metals and Alloys)  
ST pickling **passivating** stainless **steel** bath; redox  
potential continuous air flow  
IT **Passivation**  
Pickling  
(process for stainless **steel** using a bath contg. ferric ions,  
sulfuric acid, hydrogen **fluoride**, and hydrogen peroxide)  
IT Surfactants  
(nonionic, process for pickling and **passivating** stainless  
**steel** using a bath contg.)  
IT 7664-39-3, Hydrogen **fluoride**, uses 7664-93-9, Sulfuric acid,  
uses 7722-84-1, Hydrogen peroxide, uses 10028-22-5, Ferric sulfate  
20074-52-6, Ferric ion, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(process for pickling and **passivating** stainless **steel**  
using a bath contg.)  
IT 12597-68-1, Stainless **steel**, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(process for pickling and **passivating** using a bath contg.  
ferric ions, sulfuric acid, hydrogen **fluoride** and hydrogen  
peroxide)
- L65 ANSWER 9 OF 16 HCA COPYRIGHT 2003 ACS on STN  
120:229796 **Fluoride** accumulation into SUS 304 **steel**  
**passive** film and selective dissolution of iron component.  
Tachibana, Koji; Mizushiro, Masaaki; Kumagai, Yukiko (Fac. Sci., Sci.  
Univ. Tokyo, Tokyo, 162, Japan). Zairyo to Kankyo, 42(12), 762-9  
(Japanese) 1993. CODEN: ZAKAEP. ISSN: 0917-0480.  
AB The **passivation** behavior of SUS 304 stainless **steel**  
was electrochem. examd. in 0.075M Na2SO4 contg. 0.001-0.3M F- and/or Cl-  
at pH 2-12.6 and 25.+-.0.5.degree.. No pitting corrosion occurred in the  
F- soln., but the dissoln. of **passive** film was accelerated in  
the transpassive region and the **passive** current slightly  
increased at lower pH. F- dissolved preferentially the Fe component in  
SUS 304. The Fe dissoln. occurred immediately after polarization started  
in soln. contg. F- and after addn. of F- in F--free soln. F- was  
incorporated into the **passive** film formed in the soln. contg.  
F-, but not incorporated into the films by the addn. of F- in the course  
of **passivation**, whereas Cl- was not incorporated in the film  
regardless of the timing of Cl- addn.  
CC 72-6 (Electrochemistry)  
Section cross-reference(s): 55  
ST **fluoride** incorporation **passive** film stainless  
**steel**; electrolytic polarization stainless **steel**  
**fluoride** chloride; selective dissoln iron stainless **steel**  
IT Oxidation, electrochemical  
(of stainless **steel** in soln. contg. **fluoride**,  
selective dissoln. of iron in)  
IT **Passivation**  
(electrochem., of stainless **steel**, **fluoride**  
incorporation by **passive** film in relation to)  
IT 11109-50-5, Sus 304  
RL: PRP (Properties)  
(electrolytic polarization of and selective dissoln. of iron component  
from, **fluoride** incorporation by **passive** film in  
relation to)  
IT 16984-48-8, **Fluoride**, properties  
RL: PRP (Properties)  
(electrolytic polarization of stainless **steel** in sodium  
sulfate soln. contg. chloride and, **fluoride** incorporation by

- passive** film in relation to)  
IT 16887-00-6, Chloride, properties  
RL: PRP (Properties)  
(electrolytic polarization of stainless **steel** in sodium sulfate soln. contg. **fluoride** and, **fluoride** incorporation by **passive** film in relation to)
- IT 7757-82-6, Disodium sulfate, properties  
RL: PRP (Properties)  
(electrolytic polarization of stainless **steel** in soln. contg. **fluoride** and/or chloride and, **fluoride** incorporation by **passive** film in relation to)
- IT 12597-68-1  
RL: PRP (Properties)  
(**passivation**, electrochem., of stainless **steel**, **fluoride** incorporation by **passive** film in relation to)
- IT 7439-89-6, Iron, miscellaneous  
RL: REM (Removal or disposal); PROC (Process)  
(removal of, in selective electrochem. dissoln. of stainless **steel** in soln. contg. **fluoride**)
- IT 16984-48-8, **Fluoride**, properties  
RL: PRP (Properties)  
(electrolytic polarization of stainless **steel** in sodium sulfate soln. contg. chloride and, **fluoride** incorporation by **passive** film in relation to)
- L65 ANSWER 10 OF 16 HCA COPYRIGHT 2003 ACS on STN  
118:258957 Formation of **fluoride**-based **passive** films on stainless **steel** for resistance to corrosion by hydrofluoric acid. Oomi, Tadahiro; Miki, Masahiro; Maeno, Matagoro; Kikuyama, Hirohisa (Hashimoto Kasei Kk, Japan). Jpn. Kokai Tokkyo Koho JP 05033115 A2 19930209 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-208446 19910724.
- AB Stainless **steel** is mirror polished and then surface treated to form a CrF3-based film to promote resistance to corrosion by aq. HF. A mirror polished SUS 316L stainless **steel** strip (surface roughness 0.03-1 .mu.m) was preheated in N, treated with F at 300.degree. for 20 min, and heated in N at 400.degree. for 180 min. The treated strip showed no corrosion after immersion in 5% aq. HF at 25.degree. for 5 h.
- IC ICM C23C008-08  
CC 55-6 (Ferrous Metals and Alloys)  
ST **fluorine** surface treatment stainless **steel**; corrosion resistance **fluoride** stainless **steel**
- IT **Passivation**  
(of stainless **steel**, by **fluorine**)
- IT 7664-39-3, Hydrofluoric acid, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(corrosion resistance to, of stainless **steel**, **fluorine** **passivation** for)
- IT 11134-23-9, SUS316L  
RL: PRP (Properties)  
(hydrofluoric acid corrosion resistance of, treatment with **fluorine** for)
- IT 12597-68-1  
RL: USES (Uses)  
(**passivation**, of stainless **steel**, by **fluorine**)
- IT 7782-41-4, **Fluorine**, uses  
RL: USES (Uses)  
(surface treatment of stainless **steel** with, for resistance to

- corrosion by hydrofluoric acid)
- IT 7782-41-4, Fluorine, uses  
RL: USES (Uses)  
(surface treatment of stainless steel with, for resistance to corrosion by hydrofluoric acid)
- L65 ANSWER 11 OF 16 HCA COPYRIGHT 2003 ACS on STN  
116:219082 Stainless steel coated with fluoride film for passivation. Omi, Tadahiro; Miki, Masahiro; Maeno, Matagoro; Kikuyama, Hirohisa (Hashimoto Chemical Industries Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 03215656 A2 19910920 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-10915 19900119.
- AB Stainless steel is coated with a passivating film contg. mainly FeF<sub>2</sub> and FeF<sub>3</sub> in nearly stoichiometric amts. The stainless steel parts are coated by preheating in an inert gas, fluorinating, and heat treating in a chamber app.
- IC ICM C23C008-08  
CC 55-7 (Ferrous Metals and Alloys)  
ST passivating fluoride film stainless steel;  
iron fluoride passivating steel
- IT Passivation  
(of stainless steel, iron fluoride film for)
- IT Coating materials  
(passivating, iron fluoride, on stainless steel)
- IT 7783-50-8, Iron fluoride (FeF<sub>3</sub>) 7789-28-8, Iron fluoride (FeF<sub>2</sub>)  
RL: PROC (Process)  
(coating contg., on stainless steel, passivation by)
- IT 12597-68-1, Stainless steel, uses  
RL: USES (Uses)  
(coating of, with iron fluoride, chamber app. in)
- IT 11134-23-9, SUS-316L  
RL: PROC (Process)  
(passivating of, iron fluoride film for)
- IT 12597-68-1  
RL: PROC (Process)  
(passivation, of stainless steel, iron fluoride film for)
- L65 ANSWER 12 OF 16 HCA COPYRIGHT 2003 ACS on STN  
115:163777 Fluorine passivation of stainless steel  
. Miki, N.; Maeno, M.; Maruhashi, K.; Nakagawa, Y.; Ohmi, T. (Hashimoto Chem. Ltd., Sakai, 590, Japan). Corrosion Science, 31, 69-74 (English) 1990. CODEN: CRRSAA. ISSN: 0010-938X.
- AB F passivation technol. of metal surfaces of ultra-large-scale-integrated-circuit process equipment is investigated and the passivated film quality is evaluated. Well-polished and pretreated bare surfaces of 316L stainless steel are passivated with O-free high-purity F and a uniform and stable passivated surface is obtained by direct fluoridation and succeeding thermal modification (heat-treatment in N). The nonstoichiometric structure produced by the 1st step fluoridation is converted to the stoichiometric structure by the thermal modification. Passivation performance such as corrosion-free and outgas-free is achieved as a result of this thermal modification effect.
- CC 55-10 (Ferrous Metals and Alloys)  
ST stainless steel passivation fluorine  
IT Passivation

- (of stainless steel, by fluorine)
- IT 7782-41-4, Fluorine, uses and miscellaneous  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(passivation by, of stainless steel)
- IT 11134-23-9, AISI 316L  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(passivation of, with fluorine)
- IT 12597-68-1  
RL: USES (Uses)  
(passivation, of stainless steel, by fluorine)
- IT 7782-41-4, Fluorine, uses and miscellaneous  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(passivation by, of stainless steel)
- L65 ANSWER 13 OF 16 HCA COPYRIGHT 2003 ACS on STN  
114:211435 Fluorine passivation of stainless steel  
for ULSI process equipment. Maeno, M.; Miki, N.; Maruhashi, K.; Nakagawa, Y.; Ohmi, T. (Hashimoto Chem. Corp., Osaka, 590, Japan). Proceedings - Electrochemical Society, 91-5(Proc. Symp. Autom. Integr. Circuits Manuf., 6th, 1990), 361-77 (English) 1991. CODEN: PESODO. ISSN: 0161-6374.
- AB The perfect passivation performance was achieved by introduction of 2 step fluoridation, i.e., a combination of direct fluoridation and thermal modification in which the nonstoichiometric structure was converted to the stoichiometric structure. Passivation of stainless steel surface is an essential requirement for the progress of ultra large scale integrated circuit (ULSI) manufg. equipment having a self-cleaning function due to the corrosion-free characteristics. Self cleaning means periodic inner surface cleaning of process chamber by reaction gases such as Cl<sub>2</sub> and F<sub>2</sub>. The inner surface of process chamber is not exposed to the clean room air due to this periodical gas phase cleaning so that air components, mainly moisture, are not adsorbed on the inner surface. An ultra clean-process environment was obtained to drastically decrease the down time of process equipment.
- CC 55-10 (Ferrous Metals and Alloys)  
ST stainless steel fluorine passivation  
IT Passivation  
(of stainless steel, by fluorine)
- IT 7782-41-4, Fluorine, uses and miscellaneous  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(passivation by, of stainless steel)
- IT 11134-23-9  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(passivation of, by fluorine)
- IT 12597-68-1  
RL: USES (Uses)  
(passivation, of stainless steel, by fluorine)
- IT 7782-41-4, Fluorine, uses and miscellaneous  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(passivation by, of stainless steel)
- L65 ANSWER 14 OF 16 HCA COPYRIGHT 2003 ACS on STN  
113:67400 The influence of temperature, applied potential, buffer and inhibitor addition on the passivation behavior of a commercial grade 316L steel in aqueous halide solutions. Carroll, W. M.; Howley, M. B. (Chem. Dep., Univ. Coll., Galway, Ire.). Corrosion Science, 30(6-7), 643-55 (English) 1990. CODEN: CRRSAA. ISSN:

0010-938X.

- AB The influence of factors which can increase or decrease the rate of pH redn. and halide ion build up in a developing pit soln. are evaluated for pits nucleated on the surface of a com. grade 316L **steel** in chloride, bromide and **fluoride** solns. Temp. and applied potentials are shown to have a significant influence on these processes for the **steel** immersed in Cl- and Br- soln., but not in F-. Addns. of appropriate buffers to chloride test solns. is shown to alter quite considerably the extent of pH redn. in growing pits and in a no. of cases to increase the pitting potential behavior of 316L is shown to alter considerably with the almost total elimination of activation-repassivation events on the oxide surface as evidenced by the absence of current peaks or fluctuations on potentiostatic current time plots. Removal of surface inclusions by immersion of the **steel** in HNO3 solns. results in a short term improvement in film stability for 316L.
- CC 72-6 (Electrochemistry)  
Section cross-reference(s): 55
- ST **passivation steel** inhibitor potential temp effect;  
pitting potential **steel** chloride bromide soln
- IT Electrolytic polarization  
(of molybdenum and chromium and nickel and stainless **steel** in sodium **fluoride** soln.)
- IT Oxidation, electrochemical  
(of stainless **steel** in buffered soln.)
- IT **Passivation**  
(electrochem., of stainless **steel** in buffered soln.)
- IT 10588-01-9  
RL: PRP (Properties)  
(current decay for stainless **steel** in chloride soln. with or without, **passivation** in relation to)
- IT 16984-48-8, **Fluoride**, properties  
RL: PRP (Properties)  
(electrolytic polarization of molybdenum and chromium and nickel and stainless **steel** in soln. contg.)
- IT 7439-98-7, Molybdenum, properties 7440-02-0, Nickel, properties  
7440-47-3, Chromium, properties  
RL: PRP (Properties)  
(electrolytic polarization of, in chloride soln., comparison with stainless **steel**, **passivation** in relation to)
- IT 11134-23-9 60412-50-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(**passivation** of, effect of temp. and applied potential and buffer and inhibitor on)
- IT 12597-68-1  
RL: PRP (Properties)  
(**passivation**, electrochem., of stainless **steel** in buffered soln.)
- IT 71-50-1, Acetate, properties 77-86-1 3198-29-6, properties  
11129-12-7, Borate 14265-44-2, Phosphate, properties  
RL: PRP (Properties)  
(pitting potential for stainless **steel** in soln. contg.)
- IT 16887-00-6, Chloride, properties 24959-67-9, Bromide, properties  
RL: PRP (Properties)  
(pitting potential of stainless **steel** in soln. contg.)
- IT 16984-48-8, **Fluoride**, properties  
RL: PRP (Properties)  
(electrolytic polarization of molybdenum and chromium and nickel and stainless **steel** in soln. contg.)

- 110:15040 Changes in the composition of the **passive** layer and pitting corrosion of stainless **steel** in phosphate-borate buffer containing chloride ions. Urretabizakaya, M.; Pallotta, C. D.; De Cristofaro, N.; Salvarezza, R. C.; Arvia, A. J. (Fac. Cienc. Exactas Nat., Univ. Buenos Aires, Buenos Aires, Argent.). Electrochimica Acta, 33(11), 1645-51 (English) 1988. CODEN: ELCAAV. ISSN: 0013-4686.
- AB The influence of the **passive** layer properties on the pitting corrosion AISI 316 was studied in phosphate-borate buffer contg. Cl<sup>-</sup> ions by using potential step and potentiodynamic techniques complemented with SEM. The increase of the anodization time in the **passive** region decreases the nucleation rate and the mean no. of corrosion pits formed on the AISI 316 surface. Results are explained through changes in the structure and compn. of the **passive** layer during anodization. Two different Cr(III) species can be voltammetrically detected at short anodization times, an outer weakly bound Cr(III) species which is electrooxidized to sol. CrO<sub>4</sub><sup>2-</sup> and an inner Cr(III) species which is electrooxidized to Cr(VI) but retained in the film at potentials lying in the transpassive region. As the anodization time in the **passive** region increases, the weakly bound Cr(III) species is transformed into another more stable one, probably an Fe chromite, which exhibits an oxidn. potential more pos. than that of Cr(III) species. The aged **passive** layer becomes more resistant to pit initiation, due to either a decrease in the d. of active sites or a decrease in the nucleation rate const. for pit initiation.
- CC 72-6 (Electrochemistry)  
Section cross-reference(s): 55
- ST pitting stainless **steel** **passive** layer effect;  
anodization stainless **steel** pitting corrosion;  
electropassivation stainless **steel** pitting corrosion
- IT Oxidation, electrochemical  
(of stainless **steel** in borate-phosphate buffered soln. contg. chloride)
- IT Anodization  
(of stainless **steel**, pitting corrosion in phosphate-borate buffered soln. contg. sodium **fluoride** in relation to)
- IT **Passivation**  
(electrochem., of stainless **steel**, pitting corrosion in phosphate-borate buffered soln. contg. sodium **fluoride** in relation to)
- IT 7647-14-5, Sodium chloride, uses and miscellaneous  
RL: USES (Uses)  
(anodization of stainless **steel** in phosphate-borate buffered soln. contg., pitting corrosion in relation to)
- IT 1330-43-4  
RL: PRP (Properties)  
(anodization of stainless **steel** in soln. contg. sodium chloride and potassium phosphate and, pitting corrosion in relation to)
- IT 7778-77-0, Monopotassium phosphate  
RL: PRP (Properties)  
(anodization of stainless **steel** in soln. contg. sodium chloride and sodium tetraborate and, pitting corrosion in relation to)
- IT 11107-04-3, AISI 316  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(corrosion of, pitting in phosphate-borate buffered soln. contg. chloride, effect of **passive** layer properties on)
- IT 13907-45-4P, Chromate (CrO<sub>4</sub><sup>2-</sup>)  
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in anodization of stainless **steel**, pitting corrosion resistance in relation to)
- IT 12597-68-1



RL: PRP (Properties)

(**passivation**, electrochem., of stainless **steel**,  
pitting corrosion in phosphate-borate buffered soln. contg. sodium  
**fluoride** in relation to)

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103:199250 The effect of halogen ions on **passivation** of  
**steel**. Osafune, Tadao (Dep. Metall., Tsuyama Tech. Coll.,  
Okayama, 708, Japan). Denki Kagaku oyobi Kogyo Butsuri Kagaku, 53(8),  
597-600 (Japanese) 1985. CODEN: DKOKAZ. ISSN: 0366-9297.

AB The effects of halogen ions on **passivation** films on  
**steel** were studied. Specimens of C **steel** contg. 0.28% C  
were dipped in 2N H2SO4 contg. 0.001-0.05 mol/dm3 NaCl, NaBr, NaI, or KF  
at 30.degree., and the polarization behavior was measured. The effects of  
halogen ions on the previously formed **passivation** film in 2N  
H2SO4 were also studied. Effect of dissolved O was prevented by blowing N  
into the soln. before and during the expt. **Passivation** behavior  
of **steel** when halogen ion was added to the acid soln. was in  
agreement with the tendency to destruction of the **passivation**  
film. The main factor in preventing **passivation** was destruction  
of the **passivation** film by halogen ions.

CC 55-8 (Ferrous Metals and Alloys)

ST **passivation steel** sulfuric acid halide; chloride  
**steel passivation acid**; bromide **steel**  
**passivation acid**; iodide **steel passivation**  
**acid**; **fluoride steel passivation acid**

IT **Passivation**

(of carbon **steel**, halide effect on)

IT 7647-14-5, uses and miscellaneous 7647-15-6, uses and miscellaneous  
7681-82-5, uses and miscellaneous 7789-23-3

RL: USES (Uses)

(**passivation** in sulfuric acid contg., of carbon **steel**  
)

IT 11121-90-7, uses and miscellaneous

RL: RCT (Reactant); RACT (Reactant or reagent)

(**passivation** of, halide effect on)